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Vol 5 No 3

Spectrum 128 software now ready in UK

SOFTWARE companies are gearing up products for the Spectrum 128 in this country, despite Sinclair's continued silence on the subject of a British launch for the machine.

A number of software houses have had Spanish Rom versions of the Spectrum 128 for some months ostensibly to produce titles for the Spanish market. Now, apparently, versions of the machine with English Roms are being sent to companies for development as well.

Popular thinking indicates that Sinclair will introduce the Spectrum 128 in the UK at the end of January (see *Popular Computing Weekly*, December 12). If so, then Tasman Software will be one of the companies to release titles.

"We are doing an implementation of Tasword for the Spectrum 128," said Simon Howarth of Tasman. "It will be a conversion of Tasword 6128, for the Amstrad machine, which is our most powerful Tasword version yet.

"It will make full use of the additional memory, and priced, probably, at £15.50. However, it will be released

continued on page 4▶



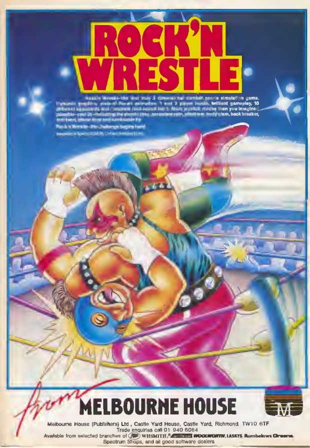
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- Showdown in Las Vegas — news from CES
- US Gold's empire expands
- Biggles on the micro

Acorn's Master Series previewed – see p10

INSIDE) SECOND SPECIAL OFFER COUPON TO CUT OUT – P35


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Vol 5 No 3



EDITORIAL

Last week Acorn came out of its hibernation of reorganisation/rationalisation to launch the next generation of BBC labelled micros – the Master Series And a substantial looking range it is too The person that once compared owning a BBC computer to owning a Volvo must have been clairvoyant as the beast now comes complete with crumple zones for inserting second processors and the like plus the usual comprehensive range of ports (say maybe a towing bar and roof rack) plus in-built Rom's (read stereo radio/cassette deck) But the question is, who is going to buy the thing?

All these extras cost quite a lot any claims of 'competitive pricing' at £500 for the basic 8-bit 128K system, with no disc drive and no monitor sound rather silly Nevertheless, the Master Series has still got quite a lot going for it. Any existing BBC B owner wishing to upgrade is going to buy one The fact that many potential buyers of the new series won't be using their own money (but that of various educational establishments) will work in its favour

Yet Acorn seems to have the idea that what it has got hold of here is a mass market machine – in addition to the schools, colleges and laboratories But once again who are they selling to? At the lower end, what newcomer will buy a Master in preference to, say, a C128 (effectively half the price) What business is going to spend £1800 on an relatively unestablished business system?

All the glossy ads in the world don't change the fact that customers for the Master Series will come from select, esoteric areas of the market, probably largely from existing BBC owners Acorn is not likely to attract new users with the range

Editor Christina Erskine **Features editor** Graham Taylor **Software editor** John Cook **Production editor** Lynne Constable **Editorial secretary** Lucinda Lee **Advertisement manager** Jeff Baggett **Advertisement Executive** Diane Holyoak **Advertisement executive** David Osen **Administration** Geraldine Smyth **Managing editor** Peter Worlock **Publishing director** Jenny Ireland **Published by** Sunshine Publications Ltd, 12-13 Little Newport Street, London WC2H 7PP Tel 01-437 4343 Telex 296275 **Typeset by** Publishers Reprographics Services Ltd, 4 Roger Street, London WC1 **Printed by** Greenaway Harrison, Sutton Road, Southend-on-sea, Essex. **Distributed by** S M Distribution, London SW9 Tel 01-274 8611 Telex 261643 © Sunshine Publications Ltd 1986.

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Computer Trade Association Magazine of the Year

Spectrum 128

◀ continued from page 1

on microdrive only," he continued. "The product should be ready in early February – it will be available when the machine reaches the shops."

Other utilities for the British Spectrum 128 include Softechnics' word processor *The Writer*; *The Magus*, a development system from Ocean IQ, *Music Box* from Melbourne House, an extended version of its 48K *Wham! Music Box*; and *Art Studio* from Oxford Computer Publishing via BT's new Rainbird label. "We are also looking at enhancing and expanding our word processor *Word Manager*," said OCP's Bruce Everiss. DK'Tronic is also thought to be working on peripherals for the machine for its launch.

On the games side, many of the top companies are working on versions of existing titles. *Fairlight* from The Edge, *Yie Ar Kung Fu* from Ocean/Imagine, *Knight Tyme* (a sequel to *Spellbound*) from Mastertronic, and Firebird's *Rasputin* are all being beefed-up for release on the 128. The Ocean/US Gold group is also planning conversions.

It will be sold in the normal High Street outlets. "We have spoken to Sinclair and expect to be taking it," said John Greengrass of Boots.

Hewson follows Paradroid with Uridium

HEWSON'S latest game for the Commodore 64 is *Uridium*, a space combat game written by *Paradroid* author Andrew Braybrook.

The game features 3D graphics moving across the screen at very high speeds.

Uridium costs £8.95 on cassette and £12.95 on disc, and will be available next month.

Head-on fight for ST and Amiga at CES

ATARI announced its one megabyte Ram 1040ST at the Winter Consumer Electronics Show in Las Vegas last week, and confirmed that the 520ST will now become its entry level 16-bit machine, to be sold to chain stores and mass market outlets. The 1040ST will replace it in specialist dealers. The machine is not currently intended for the UK.

Atari UK also announced at CES that it will no longer continue with the 260 ST, which it previewed at the *Personal Computer World* show in London last September. This move leaves the future of the promised – and delayed – 260ST in the UK very unclear. Rob Harding, Atari UK's sales and marketing manager, said, "We, in the UK, are now sorting out our product plans for this year, and our intention is still to continue with the 520ST and introduce the 260ST in the first quarter of 1986."

The 1040ST will cost $999.95 (around £700) with a high resolution monochrome monitor, disc drive and bundled software. The same package, but with a colour monitor, will cost $1199.95 (£800). Atari hopes to release its SHD-204 20M hard disc unit for the machine next month. The 1040ST is intended as a head-on competitor to Commodore's Amiga, which costs $1750 (£1200) for an equivalent package but with just 256k, and also Apple's Macintosh at $2499 (£1700).

Commodore did not take a stand at CES, but held a conference at a nearby hotel suite on the first day. The company is having problems over the paucity of Amiga software, which has been on sale in the US since September.

While many US software companies have turned to producing 16-bit software from 8-bit packages, including the two leading houses, Activision and Electronic Arts, many are still undecided which of the 16-bit micros – the ST, Amiga or Apple Macintosh – to fully support.

So far, the ST is gaining more than the Amiga. Bing Gordon, marketing vice president of Electronic Arts, said, "Tramiel has shown himself to be pretty canny, and Commodore has made some bad moves recently."

British software was also in evidence at the show, with large stands taken by Mastertronic and Firebird Licensees, an offshoot of Firebird/Rainbird.

A full CES report will appear in next week's issue.

Scott Adams to join US Gold stable

ADVENTURE International is likely to be the next company to join the US Gold stable. The two companies are set to sign a deal similar to that between US Gold and Ultimate (see *Popular Computing Weekly*, January 9).

"We have a draft contract set up, although it is not yet signed," said Tim Chaney, US Gold's general manager. "It is on the cards that we will be doing the marketing and publishing for at least the Scott Adams adventures released by Adventure International."

The company's next release, which will probably now have US Gold's name on the packaging as well as AI's, is *Questprobe III*, *The Fantastic Four*, which is due for release in March. US Gold plans to publish the product on its All-American Adventures label.

Commodore's profit claim suffers setback

COMMODORE International has backed down from its claim that it would make a profit in the second quarter to December 31, 1985 (see *Popular Computing Weekly*, January 9). The company has recently suffered a string of four quarterly deficits, which led to a £80m loss for 1984-1985.

Now Commodore International spokesman, Paul Lazovick claims that asset write-downs may turn a small profit into a loss. "We will have a pre-tax profit based on ongoing operations for the December quarter. That does not take into account asset write-downs, which are not an event strictly concerned with earnings and sales.

"I am not categorically stating there will be a loss – it depends on write-downs."

Also to be taken into account are the losses from the closure of Commodore's Corby plant, and also the shutdown of a semiconductor plant at Costa Mesa in California with the loss of 200 jobs.

Amstrad's PCW 8256 for hire

AMSTRAD PCW 8256 machines are now available for hire, courtesy of Sagesoft, if you live in the London area.

"We started this pilot scheme just before Christmas and already we have had several hundred inquiries," said David Goldman, Sagesoft's managing director.

"We are offering people not just the machine, on a weekly rental basis, but a complete service and insurance agreement. We give users full training on the machine, maintenance and replacement of software if anything goes wrong."

A two-year rental contract from Sagesoft costs £13.54 per week, three years £10.75 per week, and four years £9.42.

Details from Sagesoft on 081-284 7077.

By Jove, Biggles, we're a computer game!

BIGGLES, a computer game based on a movie of the same name, is to be released by Mirrorsoft in the spring. The film is based around the famous series of books by Captain W E Johns. Mirrorsoft has the film rights, while Palace Software has licensed the books.

Mirrorsoft describes *Biggles* as a "multi part game involving several classic varieties of game play." The game will load in several sections. Despite the presence of Biggles and flying chums like Algy, the game does not primarily feature flying, being broadly a strategy game.

Biggles (the film) is to be given a Royal Premiere this spring and Mirrorsoft hopes to donate that day's sales of the game to the *Off the Hook* charity.



Scene from the film *Biggles*

Atari ST titles now number over 100

THE list of software available in the UK for the Atari 520 ST now numbers over 100 programs. The titles range from games to powerful business utilities, although the emphasis is more on the games side.

Many are American imports, available in this country from SDL, the distribution arm of Atari dealer Silica Shop. Home produced products include *Desk Diary* from Eidersoft (£59.95), *Rhythm* a diary cum general desk utility, from Softechnics (£39.95), macro assemblers from GST (£39.95) and Metacomco (£49.95), *Devpac ST* from Hi-Soft (£49.95), *GSTC* from GST (£59.95) and *K-Seka* from Kuma 49.95).

Other utilities include Talent's *Ram Disc/Print Spooler* (£24.95), Microdeal's *Soft Spool/M-Disc* (£19.95) and *K-Ram* from Kuma (£29.95).

On the entertainment side, Microdeal has three titles now available *Lands of Havoc*, *Flipside* and *Mudpies* (all £19.95).

Talent's *Zkul* and *West* adventures are available on a single disc at £24.95. Eidersoft has *Mission Mouse* at £19.95 and *Brataccas* from Psygnosis at £34.95 is also out.

Rob Harding, Atari UK's sales and marketing manager said, "We are determined that the ST will have software covering all areas of the market from games and entertainment through to serious business and vertical market applications."

Most of the above titles, and many from the US should be available from Silica Shop/SDL on 01-309 1111.

Play by Mail convention

PLAY BY MAIL game fans will be interested to hear of Britain's first PBM convention, to be held at Islington Town Hall, on Saturday, February 15. Tickets cost £1 from Mike McGary, 2 David Court, Lansdown Road, London N17 9XW.

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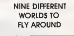
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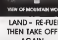
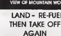
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VIEW OF MOUNTAIN WORLD 8

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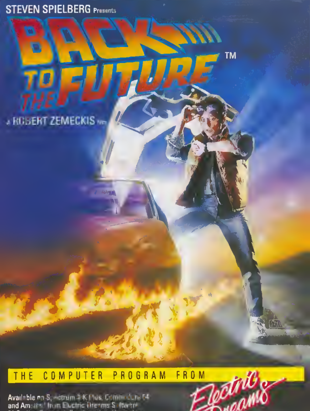
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Letters

Print options

Having just received a copy of OCP's *Word Manager*, which I bought largely on your recommendation, I'd like to add a few comments to your rather gushing review

Word Manager is certainly flashier than *Tasword* I found it amazingly simple to configure it to fit my printer and interfaces Its editing process is flashier, but not better than *Tasword's*, it has helpful features such as automatic paragraph indent and the automatic erasure of the old text on a cartridge, though I'm not happy about being able to format from menu, I foresee appalling accidents!

It also has a perfectly useless ability to swap two consecutive words, and of course its prime advantage is its ability to print more than *Tasword's* very limiting 64 characters

However, *Tasword* offers a jump to start or end of text, and the ability to move strings left and right Also *Word Manager* has no on-screen information, and when you find this info it doesn't include the number of lines used, or the line number of the cursor, so if you want to print part of a text you have to count up and work out very carefully whether it will fit

Tasword offers three options to print – justified complete words, justified broken words and 'ragged right' as from an ordinary typewriter *Word Manager* does not have this last option When printing, *Tasman* asks for a left margin and prints all text at that distance from the left of the paper.

On balance, if I were buying a word processor, I'd still buy *Tasword*.

John Ledbury
London, N22
Wilts

Just the icing

I am the proud owner of an Amstrad CPC 464 and a DDI-1 disc drive, and I can say that I have found it a formidable computer. Not only has it got excellent games, but it also provides the user with a vast amount of business software, especially in the CP/M field (and this is what made me buy the computer).

Your magazine appears to treat the CPC 464's CP/M compatibility with scepticism and you do not appear to counsel your readers to purchase the computer solely to gain access to CP/M On the contrary, even your DDI-1 disc review (*Popular Computing Weekly*, 29 November-5 December 1985) states CP/M should be regarded as icing on the cake and not the cake itself, mainly due to the software being more expensive than the hardware What's more, further objections were made regarding the fact that only 39.5K remains for CP/M programs to run in

It is my opinion that being given a cheap CP/M compatible computer to run tried and tested CP/M software is like being let into a pub under age, provided that you pay for your own drinks May I also remind you that in another issue of the magazine William Poel himself states that "All the hooks are present in the system design to permit some enterprising soul to devise an MSDOS 512K add-on if they so desire " I look forward to such an add-on.

Finally, thank you very much for the support that your magazine gives the Amstrad range of computers

Vincent Sladden
70 Kent Street
Fgura
Malta

Funny how the Spanish market has taken off in the last few weeks

Vortex Software Sales Ltd, producers of the excellent *Highway Encounter* on the Spectrum and Amstrad, have asked us to point out that they are not associated with the Vortex Expansion Board for the Amstrad reviewed in last week's issue of *Popular Computing Weekly* Screen Micro is the only distributor of the board.

Print options

I am Chairman of the newly formed South Eastern Einstein User Group We have got together because there seems little support for the machine even though it is probably one of the best micro's on the market

Because it supports CP/M the wealth of Public Domain software is readily available and since it is a soft machine, it speaks a variety of languages including BBC Basic, Cobol, Forth and many others without loss of available memory There is a Spectrum Emulator due out for it shortly whereby it will run any Spectrum software and it is rumoured that it is being used to develope software for the Amstrad.

Any readers interested should contact me at the above address

C S Giles
South Eastern Einstein User Group
15 Oakdene Crescent
Mile Oak
Portslade
Sussex
BN4 2RP

Print options

Having read recently of a bug in the Spectrum version of Elite, discovered by Paul Hughes, I tried it out and was delighted to find it works

One point which raises its head, however, is that Tigeans Sun is about to go Nova and you must hyperspace immediately to avoid destruction. Another effect is that the space stations become invisible which doesn't affect the game as long as your docking computers are not destroyed in a fight. The only option is to abandon the game and start again.

I am trying to discover a way of equipping my ship with a docking computer while my status remains harmless, as docking is the only barrier to my achieving Elite status However, I am not a very competent hacker and would welcome any help in explaining the above and how to get docking computers at the start of a normal game

James Carter
74 Northlands
Moss-side
Leyland
Lancs

Bigger battles

It's been some time now, since you incorporated *Home Computing Weekly* into your magazine. But where is the evidence of its continued existence?

Surely you didn't think it had gone unnoticed in all this time you have mentioned the blessed TI99/4A only once

Weren't you told that *HCW* was the bastion of hope for the Tiers? Do you think that you could just sit back and let them fade away like old worn-out soldiers?

Well, I, for one, will not lie down We fight bigger battles than that every time we switch on the best computer ever to grace this earth.

The trouble with you lot is that you're biased towards those Spectrums and Commodores and that flash Amstrad What's wrong with having wires trailing all over the place, anyway? And surely God never intended computers to go that fast – it's even faster than I can think.

M Sleight
Doncaster
S Yorks

A small bug

In my review of Tasman's utility for the Amstrad 6128, *Tas-spell*, I mentioned a small bug that affected the first line of text upon Saving and Loading Robin Thompson of Tasman assures me that this problem was present only on the first few copies – these will, of course, be replaced

Tony Bridge

Peter Worlock previews a Master Series – Acorn's new generation of BBC machines offering power, but at a price

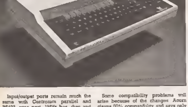
Whatever your feelings about Acorn, it has to be said that 1985 was not the best year for the chaps at Cambridge. It proved to be 12 months of financial disaster resulting in two bail-outs by Olivetti, the dumping of Electrons at fire-sale prices, and a chaotic product policy towards the BBC Micro which underwent two upgrades in rapid succession.

However, the company has got off to a confident start in 1986 with the launch of a range of five machines, based around a replacement for the BBC model B in all its disguises. The outstanding question is whether that confidence is justified.

The Master Series

The base model of the new range is the Master 128. If you surmised from the name that it has 128K of Ram you'd be right. If you further surmised that it's just another variation on the Model B you'd be half right.

The most obvious changes are on the outside. The Master features a redesigned case incorporating a numeric keypad, cartridge socket in Electron style, and a substantial bulge to incorporate the upgrade boards internally.



Input/output ports remain much the same with Centronics parallel and RS423, user port, 1MHz bus, disc and cassette interfaces. The Tube, Acorn's customised fast interface for driving second processor boards, is also present.

Inside, the changes are more significant. They start with the introduction of a new main processor, the 65C12. This is a CMOS upgrade of the 6502 which has a lower power requirement, faster speed and an extended instruction set.

The memory map has also undergone some major changes resulting in a more flexible and powerful system but the price for that is likely to be some confusion.

The 128K of Ram is installed as four 64K × 4 bit chips and configured as 64 of main memory and four pages of 16K in shadow Ram. Graphics in shadow mode provide the high-quality BBC displays without affecting user memory.

One innovation is the use of 12K as "private Ram" by the operating system and sideways Roms, which means they do not eat into user memory. A further 50 bytes of CMOS, battery-backed Ram provide a permanent real-time clock (accessible from Basic) and allow you to choose among 22 start-up options and configure them permanently.

System Rom is also considerably changed. The Master comes with 128K of Rom including a bigger operating system, an upgraded Basic dubbed version 4.0, the *View* word processor, *Viewsheet* spreadsheet, a text editor and not one but two disc filing systems – an upgraded version and the older DFS 2.2 to maintain compatibility.

Some compatibility problems will arise because of the changes. Acorn claims 80% compatibility and says only "naughty" programs that use illegal operations will fail. Among the identified incompatibles are Level 9's *Return to Eden*, and Acornsoft's own *Aviator*.

Changes in Basic include an enhanced assembler to take advantage of the 65C12's instruction set, a *Time$* function to access the real-time clock, and extended graphics commands allowing colour blending.

The upgrades

The first of the three upgrades is called the Turbo. It adds a 65C102 processor, still 8-bit but running at 4Mhz and boosting the Master's speed by 50%. The board also adds 64K of Ram and operating system support for parallel processing.

The Master Scientific is aimed, obviously, at the scientific community and is the most powerful of the options. Main processor is a National Semiconductor

The question of IBM compatibility, once only the concern of business computer manufacturers and their customers, is raising its head among the home computer companies.

Rumours point to Amstrad producing a 16-bit MS-DOS machine sometime this year, Commodore is making great play of the Amiga's ability to run IBM software, and for Acorn it has been a pressing need for some time because MS-DOS and the software running under it represent the standard in personal computing – something of great concern to schools, colleges and universities.

But what is the connection between MS-DOS, 16-bit computers and IBM? Before IBM entered the personal computer market, there were 16-bit machines in common use but no single operating system predominated. When IBM launched the PC it employed Microsoft's operating system MS-DOS and thus set the standard in a single move. The reason is quite simply that where IBM leads others follow.

Then, in typical IBM fashion, the computer giant changed the operating system slightly, calling it PC-DOS and creating a situation where some IBM programs, but not all, will run under MS-DOS. In the business computer market, therefore, there are three states of existence. In declining order they are: IBM-compatibility, which is yer actual bees' knees; MS-DOS compatibility which is better than nothing; and anything else which is the same as nothing at all unless you happen to be Apple.

For the Acorn Master 512, MS-DOS is okay, but at £1,800 by the time you've added a monitor and disc drives, it may be offering too little and costing too much.



or disc drives and the lack of the latter seems a stunning omission in the case of the 512, where they are essential.

The biggest question mark stands against pricing (see panel for details) Acorn's worst failing has long been its insistence on holding prices up when its major competitors have cut theirs considerably At £499 the base model is arguably competitive given the inclusion of *View* and *Viewsheet*, and the 512 upgrade at another £500 is reasonable if you already have the Master 128 But if you go straight for a working 512 system, £1,000 without discs and monitor is clearly expensive

By the time you've paid for a working system, there'll be little change out of £1,600 in a market where comparable systems offering true IBM compatibility are commonplace at around the £1,000 mark

In the educational market, the Master 512 is up against the established Nimbus from Research Machines which offers similar features at a similar price

In the home market it's hard to see the Master standing up against Amstrad's machines, particularly if the Amstrad MS-DOS system emerges in the near future

The 128 is the only model available now, with the Econet Terminal and Turbo upgrades following next month The 512 and Scientific upgrades may not appear until April or May.

While the machines are undoubtedly technically good, they stand the best chance of success in specialist niches in science, industry and education. Software that takes advantage of the new features may be thin on the ground for a while since that would preclude the 800,000 owners of existing BBC micros

In conclusion, I'm afraid the Master series may see the end of Acorn as one of the big players in the mainstream personal computer market.

32016 32-bit chip running at 8MHz with the 32081 maths co-processor Memory is upgraded to 512K.

The major attraction of the Scientific is the bundled software The board comes with an enhanced operating system, Fortran 77, ISO Pascal and C, all with full library support, and a 32000 series macro assembler

Before getting to the star of the show, a detour round the fifth model in the range, the Econet Terminal. Fondly called ET by Acorn, it is more a downgrade, dropping the bundled software but incorporating a network interface card. ET is designed to appeal to educational establishments seeking a low-cost networking system

The Master 512

And here it is, Acorn's long-awaited entry into the 16-bit business computer arena, a machine to stand alongside the Apricots, Olivettis and IBM PCs, and on paper it looks attractive.

Again, it comes in the form of an add-on board for the Master 128 The enhancements over the basic model include Intel's 80186 chip as main processor and 512K of Ram

For the operating system software, Acorn has plumped for Digital Research's DOS+ which provides compatibility with Digital Research's own CPM-86 and, more importantly, the industry-standard MS-DOS

While this doesn't give true IBM compatibility, it does mean that the Master will be able to run many of the most important business programs from the big names like Microsoft, Ashton-Tate and Lotus

The 512 comes bundled with DR's Gem Collection – the Gem desktop which provides the Macintosh-like use of windows icons and pull-down menus (as on the Atari ST), the word processor *GemWrite*, and *GemPaint* the sketchpad program

Gem demands the use of a mouse so the 512 upgrade includes one

First impressions

The technical excellence of Acorn's products has never been questioned and there is every indication that the Master series is built to the same high standards However, it must be said that the Master adds up to a pretty ugly system and bears many signs of a cost-cutting kludge Those of you with long memories will recall striking similarities with the now-dead ABC range The major difference is that the bastardised Model B case replaces the smart, business-style housings of the ABCs

None of the models includes monitor

Model	Price	System price
Master 128	£499	£499
Master ET	£399	£399
Master Turbo	£125	£624
Master 512	£500	£999
Master Scientific	£1,500	£1,999

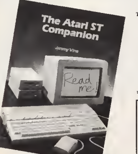




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The Atari ST Companion has been written with the benefit of full hands on experience of the machine Jeremy Vine begins with an overall look at the ST, followed by a detailed introduction to the GEM (Graphics Environment Manager) system This offers facilities comparable with the much more expensive Apple Macintosh, including windows, pull-down menus and the facility to use a mouse to point to icons to replace typed commands.

Also covered is the Atari Intelligent Keyboard Controller, the very sophisticated sound system of the ST (which includes the industry-standard MIDI interface), the TDS operating system and the graphics LINE "A" interface

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Name: David Jones

Mastertronic programmer

My first computer was a Video Genie 16K which I bought in 1980. It had a Basic very similar to Tandy Basic and I began learning that. About a year later I got a Tandy Model III, the machine cost me £368 and I remember thinking that I had to make the money back somewhere so I started writing games.

The first real programming I did was to convert some TRS 80 games by Big Five in the States to the Video Genie – they were very similar. I really learnt machine code by experience though I did find a small pocket book on the Z80 by Sybex very useful – it's a sort of cut down version of the massive Zaks book which I have but don't use. When the Spectrum came out I was very scathing about it – it didn't cost enough and my machine had discs! Later I got interested in the colour and graphics possibilities.

The best way to learn machine code is to read as many computer magazines as possible. That gives a wider and more up to date insight into what's going on than out-of-date books. It's probably worth getting one technical guide like the Sybex book and an assembler, but once you start programming you'll find you know best what you need next.

For myself I use the Zen 85 assembler on the Tandy where my Spectrum programs are assembled and then downloaded. I have my own graphics system called *Graphics Creator* (which Mastertronic have released) and I use a Spectrum Graphpad.

Many of the programmers I admire are not well known. Ray Owen is a friend who does many of graphics, Ed Hickman is a Mastertronic programmer who does incredibly good and quick conversions from the Spectrum to Amstrad and the MSX. I also love Rob Hubbards work, Ultimate's nudlle period (*Knight Lore* and *Alien 8*) and Andy White.

I think the best thing I've done so far are the Sprite routines for my latest game, *Knight Time*. I've been able to keep them solid looking and prevent the kind of colour problems you usually see.

Name: David Jones

Age: 25

Favourite Programs: *Lords of Midnight* and more recently *Gyroscope*, but I must admit I don't really play games a lot

Favourite Machines: Although I haven't really used one it does seem that the Amstrad is everything the Spectrum is with none of the problems. I like to work with the ST and the Amiga but theres no point in writing games until the machines sell enough. From that point of view I think the Atari St is the better bet.

Softography

Some early basic programs *Dynamic Graphics* and *Dynamic Programming* for a company called Procom, also a game called *Bonkers Finders Keepers*, *Graphics Creator*, *Spellbound* and a new program called *Knight Time* for Mastertronic

Hobbies

I use to belong to a club called 18+ (not to be confused with 18-30) and it was nice to meet non programmers. I used to do Morris dancing and karate, but thats gone by the wayside recently. I like science fiction, particularly Edmund Cooper and Larry Niven,

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Big money

Program *Speculator* **Micro** Spectrum/Amstrad **Price** £9 95 **Supplies** Brain Power/Collins Soft 8 Grafton Street, London W1X 3LA.

The financial simulation game reached its apotheosis in Parker Brothers *Monopoly* and has remained a firm favourite of board-game manufacturers ever since

Being a number-cruncher, the computer is the ideal medium and several versions of *Monopoly* as well as other more prosaic examples have been released over the last few years

Stock Market Speculator is from BrainPower/Collins and takes you gently through the stages from being the lucky recipient of 10,000 sovs from dear old Aunty (deceased) to a money mogul and lord of the Stock Exchange – unless you go broke of course

To help you decide how to invest your money, a great deal of on-screen information is offered. details of individual (real-life) companies (high and low prices, dividend figures and so on) as well as relevant newsflashes, advice from your stockbroker and your overall performance presented graphically and compared to the performance, over the same period, of your money invested in a Building Society

There's a wealth of detail, too, in the thick manual which covers each company in depth and finishes with a close look at the stock market and how to play it

The manual is good, but seems to have been put together before the game was finished, as many of the menus shown as examples in the manual are now different in the program itself.

A few rough edges in programming lose the program a star, and I feel that BrainPower missed an opportunity to go one further and allow data from the daily papers to be input – as it is, *Speculator* is a good way to pass the time until that cheque from Aunty arrives

Tony Bridge

Brat is back

Program *Brataccas* **Micro** Atari ST, Apple Macintosh, Amiga 512K **Price** £34 95 **Supplier** Psygnosis 1st Floor, Port of Liverpool Building, Pier Head, Liverpool L3 1BY

Once upon a time, in the early days of home computers, there was a software house called Imagine which became very famous by producing average computer games

Eventually Imagine disappeared up its own ego because it made the mistake of talking about its wonderful forthcoming products instead of actually producing them. The saga of the so-called Megagames has since been chronicled in the pages of *Popular Computing Weekly* but now, at last, the finished article albeit in changed form on different micros, is with us And, it must be said, it's been worth the wait.

Brataccas is a true animated adventure that casts you in the role of Kyne, a fugitive both from the police and the galactic equivalent of the Mafia. Your task is to find the evidence that will clear your name of the crime you didn't commit

The action takes place in and on Brataccas, an asteroid equivalent of Prohibition Chicago Life revolves around the police, the mob, and the bars. The natives are mostly hostile (a sword in the gizzard is one way of telling you to mind your manners)

You control Kyne by mouse or keyboard and it will take some practice to get him to walk, run, turn, duck, jump and fight with any grace The animation is excellent If you want to pick something up simply pull down on the mouse and Kyne stoops and collects it The same motion with the mouse button down draws his sword with an Errol Flynn flourish.

As is common, the violent bits are among the best and you can get involved in some splendid, swashbuckling swordplay

If *Brataccas* has a major failing it is in the sound What sound effects there are are done very well (doors opening, sirens going off) but they are few and far between.

There are other problems too – not so much bugs as design flaws. For example, the characters talk in comic-style speech bubbles which aren't cleared until the character leaves the room. This slows down the animation considerably And when Kyne has a number of alternative actions these are cycled in a thought bubble until one is selected This also tends to be a slow process

On the whole, though, *Brataccas* is very good indeed The main puzzle will take a long time to solve, involving as it does the discovery of the various objects you'll need in your quest (some you'll find, others you'll have to fight for) You'll also need to learn about the different characters – who can you trust? Who merits a quick taste of cold steel?

But above and beyond all that are the graphics It is difficult to imagine *Brataccas* on the Spectrum or the Commodore 64 – the detail is simply beyond 8-bit hardware In comparison with what has gone before, *Brataccas* is stunning and great news for software starved ST owners

Peter Worlock

Lacks bounce

Program *Bounder* **Micro** QL **Price** £14 95 **Supplier** Sinclair Research, Stanhope Road, Camberley, Surrey GU15 3BR.

Hot off the publisher's press and from its launch at the ZX Micro fair comes Brian Kelly's *Bounder* An arcade adventure promising sound effects and over 50 different screens

The idea of the game is to run from one screen to another collecting yellow bags of loot, overcoming all the moving enemies that march up and down the hall way

This game however, is not as impressive as it is described and deserves little, if any, acclaim It is a crude version of the computer classic *Jet Set Willy* and does nothing to enhance the power of the QL – it compares unfavourably with Spectrum games

The sound facility is an occasional random beep and the screens all look equally boring

The only good part of this software package is the additional blank Microdrive cartridge, for backup purposes

However, it would be better if you reformatted both cartridges and used them to write a long letter of complaint to Sir Clive, about quality software at quality prices

I find it hard to believe that Sinclair can seriously want to put their name to such software and think they can get away with charging such prices

Matthew Palmas

Problems

Program *Masquerade* **Micro** CBM 64/Atari **Price** £14 95 disc only **Supplier** US Gold, Unit 10, Parkway Industrial Estate, Birmingham

I have always tried to keep an open mind when sitting down to review an adventure However, I must admit when I received the above game memories of such forgettable overhyped games like *The Wizard and The Princess* and *Mission Asteroid* came to mind, possibly because they are all released by All American Adventures from US Gold.

This is the second new releases from the above company In this adventure you play the part of a private eye trying to track down the crime boss There seems to be quite a lot of this type of adventure around and it makes a welcome change from slaying orcs etc

The graphics are some of the best I've seen on the 64 Drawn instantly in large cartoon style, they do add a certain amount of added interest to the game However, if you prefer text only, there is the facility to turn them off.

The game commences in a seedy run-down hotel where you have managed to track down one of the crime boss's stooges After knocking him out with your trusty .45, a quick search reveals a few needy items which will allow you to progress further but not too far because the programmer seems to take a great delight in killing you off. in fact, I think I was killed a total of 30 times before I worked out one small problem, so saving the game regularly is an essential part of this adventure

There's a good mixture of problems to overcome before any real progress can be made, and these must be solved or it's a quick knife in the back and back you go to the beginning

I don't think I would recommend this game to the ardent middle-earth type adventurer, who like to explore lots of locations and solve the occasional problem here and there This game makes you scratch your head from the first location and carries on with each new location

As I previously mentioned, if, after a not too glorious start, All American Adventures carry on bringing out games of this standard I will certainly give them a big thumbs up

Roger Garrett

Much thought

Program *Think!* **Micro** Spectrum **Price** £7 95 **Supplier** Ariolasoft UK, Suite 105/106, Asphalte House Palace Street, London SW1E 5HS

An imperative title that's justified for once. *Think!* will make you do just that *Think!* is a board game but paradoxically, it would be impossible to play on a board.

Like many of the best games, *Think!* has a minimum of rules – four, in fact Played on a six by six grid between two players one of whom may be the computer, moves are made by sliding counters on from either the bottom or the right hand side When a counter is introduced everything else in that row or column spaces included, shifts too, eventually falling off the far edge The aim is to get four in a horizontal, vertical or diagonal row but (and this rule enlivens it no end) if at the same time as completing a row, the player also completes one for their opponent, the opponent wins

With so little complexity, entering moves is simply by single key input which lets you concentrate on what is happening on the board, and though strategies are undoubtedly possible it seems to be primarily a game of sharp wits and observation as you scan the quickly shifting situation for winning openings that won't snatch victory via the 'own goal' rule

There's a host of options, chosen by trendy little icons, from two-player to problem solving, skill levels, colour or mono display even speed limit variations The only slight dislike I had was for the tutorial mode which marks you strickly on the computer's predecided choice of best move But that problem's so minimal as not to count This is amazing value for money because I guarantee it will outlast virtually all other games so long as you've got the least grey matter to *Think!* with

John Minson

Risen again!

Program *Spook* **Micro** QL **Price** £12 95 **Supplier** Eidersoft

It may come as a great cultural shock to those that assumed Pacman had died of indigestion, to find that the ever hungry yellow blob is eating out these days, on the QL

The now infamous maze, familiar from a thousand arcade screens, has been redesigned. Features from both the original and the second version of the classic have been implemented, and add to the enjoyment of the game

The ghosts move smoothly, without any flicker across the screen Gates open and close, causing chaos to planned escape routes And for those really tricky situations, the power pills are at Pac's disposal to transform Pacman into an invincible yellow peril and the ghosts into blue jibbering net curtains

The game, however old the idea is, is probably the best version of Pacman for any micro computer

Matthew Palmer

Low drag

Program *Sir Fred* **Micro** Spectrum **Price** £9 95 **Supplier** Mikro-Gen, Unit 15, Western Centre, Bracknell, Berks

Gadzooks, those Spaniards have a problem. It doth appear that their best champion is ye worthy but ancient Sir Fred, not the sort of man you'd want to invite for a knight at the Round Table But their other nobles are involved in greater quests so they have sent him to rescue a fair Princess

Now, ye may perchance think, there is nothing original in that Yea, verily I agree, but at least the inevitable dragons are not here. An old fool he may be, there's little about this game to drag on.

I knoweth not about Don Quixote but there's certainly some donkey in Fred for when you press move he does fair gallop gaining momentum, and if he should gallop into a wall then he does take some damage This feature is novel indeed, though I did find that it made the knight a mite difficult to control in tricky situations such as jumping off ledges He may also climb and swing on ropes though this too takes much practice

Mostly, though, this gallant knave will spend his time collecting, choosing and using objects that litter the landscape, and these may spare him some danger Once he has the bow and arrows he may fire, hurl a rock, or even fence with delightful results

Yea, here is the best part of Sir Fred The animation of the figure is excellent, looking very much like a character from a continental cartoon. It did amuse his majesty greatly to watch his efforts and angry hopping Methinks that here Mikro-Gen have a character as endearing and perchance enduring as Sir Wally of the Week

However, I must confess that I found the control problems rather too great for my liking, though if ye are into hours of practice, or hacking out infinite lives pokes, then spend a knight with Sir Fred.

John Minson

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PAINT ROUTINE

by Ian Briscoe

The Spectrum is an old machine, and graphically it has a lot lacking, in hardware as well as software terms Unfortunately, there is little to be done about the hardware but extra power is available through software, and the most serious omission in the Spectrum's graphics armoury is a paint routine. The usefulness of a fill does not need to be laboured, so I thought that a quick paint routine, that will work anywhere in memory, was a must, and here it is

Relocation is achieved through Basic – the code itself is not relocatable All you have to do is type in the program save and then *RUN* it. The program will ask you for the address at which you want the code placed So long as it is not too low that it will interfere with the program, or too high that it will overflow into the ROM and thus be useless, any address can be entered. The code will be placed from this address onwards, and as the program runs, it checks that the code has been correctly entered. Once correctly poked in memory, the code will be saved,

If you want to, you can type in the demonstration program and see just how quickly things can be filled in.

To use the routine, you need to *POKE* two system variables with the coordinates of the point at which you wish the paint to commence These are 23677, the x-coordinate, and 23678 the y-coordinate

If the point at this coordinate is filled, then no paint will commence The machine stack is used for storage, so if this gets near to Basic or the variables, then the routine stops with the report 4 *Out of Memory*

Also make sure the area you want filled is 'leak-proof' because it would take just one pixel missing from a line for the 'paint' to spill out into the rest of the screen

```
55 LET length=193
60 PRINT AT 2,0, Paint routine "'
70 INPUT "Where do you want the routine  located ? ",start
80 LET bottom PEEK 23653+256*PEEK 23654+100
90 IF start<bottom OR start>65536-length THEN BEEP 1,1 GO TO 70
91 POKE 23728 start-256*INT (start/256)
92 POKE 23729 INT (start/256)
95 CLEAR start 1
96 LET length=193
97 LET start=PEEK 23728+256*PEEK 23729
98 DEF FN h(x)=INT (x/256)
99 DEF FN l(x) x-256*INT (x/256)
100 LET temp=start+2
101 LET point=start+4
102 LET stkchk=start+177
103 LET paint1=start+30
109 PRINT "Address of start and entry pointof the routine is ",start
110 PRINT '"Length of the routine is " length
113 FOR i 0 TO 23
116   LET sum=0
120   FOR a=0 TO 7
130     READ b
135     IF b<0 OR b>255 THEN  GO TO 210
140     POKE start+(a+(i*8)),b
150     LET sum=sum+b
160   NEXT a
170   READ total IF total<>sum THEN PRINT "Error  in data - try
   looking atline " 1000+i*10
175 NEXT i
177 POKE start+length-1,201
180 PRINT "Saving ""PAINT"""
190 SAVE "PAINT"CODE start length
200 PRINT '"Verifying ""PAINT""   please     rewind tape. "
205 VERIFY "PAINT"CODE start,length
210 STOP
990
1000 DATA 24,16,0,0,197,205,170,34,646
1010 DATA 71,4,126,7,16,253,230,1,708
1020 DATA 193,201,237,75,125,92,205,FN l(point),1128+FN l(point)
1030 DATA FN h(point),192,33,255,255,229,121 230,FN h(point)+1339
1040 DATA 0,40,11,197,13,205,FN l(point),FN h(point),FN l(point)+FN
   h(point)+466
1050 DATA 193,32,3,13,24,240,237,67,809
1060 DATA FN l(temp),FN h(temp),22 192,120,254,0.40,628+FN l(temp)+FN
   h(temp)
1070 DATA 21,5,205,FN l(point),FN h(point),32,12,203,428+FN l(point)+FN
   h(point)
1080 DATA 122,40,10,203,130,197,205,FN l(stkchk),FN l(stkchk)+963
1090 DATA FN h(stkchk),24,2,203,230,4,120,254,FN h(stkchk)+857
1100 DATA 175,40,21,4,205 FN l(point),FN h(point),32,FN l(point)+FN
   h(point)+477
1110 DATA 12,205,114,40,10,203,170,197,957
1120 DATA 205,FN l(stkchk),FN h(stkchk),24 2,203,242,5,FN l(stkchk)+FN
   h(stkchk)+681
1130 DATA 121,254,255,40,6,12,205,FN l(point),FN l(point)+893
1140 DATA FN h(point),40,193,237,75 FN l(temp),FN h(temp),121,FN l(temp)
   +FN h(temp)+FN h(point)+666
1150 DATA 230,7 32,21,197,209,170,34,896
1160 DATA 193,126,254,0,32,11,54,255,925
1170 DATA 205,219,11,121,198,7,79,20 860
1180 DATA 7,197,213,205,229,34,209,193,1287
1190 DATA 121,254,255,40,6,12,205,FN l(point),893+FN l(point)
1200 DATA FN h(point),40,212,193,120,254,255,194,FN h(point)+1268
1210 DATA FN l(paint1),FN h(paint1),121,254,255,194,FN l(paint1),FN
   h(paint1),24+(FN l(paint1)+FN h(paint1))+824
1220 DATA 201,213,42,101,92,17,90,0,756
1230 DATA 25,237,114,56,2,207,3,209,853
```

```
10 REM
20 REM Demonstration for the PAINT routine
30 REM You will need to locate the paint routine at 64000
40 REM
50
60 CLEAR 63999
70 PRINT  Loading the routine.  "
80 LOAD "PAINT"CODE 64000
90 CLS
100 FOR a=80 TO 1 STEP -15
110   CIRCLE 107,80 a
120 NEXT a
130 FOR a=75 TO 1 STEP -30
140   POKE 23677,107-a
150   POKE 23678,86
155   IF a=75 THEN  INK 0
156   IF a<75 THEN  INK 2
160   RANDOMIZE USR 64000
170 NEXT a
180 PAUSE 20
190 OVER 1: INK 0  PRINT AT 0,0;: LIST 75  OVER 0
195 PLOT 255 80  DRAW  INVERSE 1,-200,0
200 POKE 23677,0  POKE 23678,0
210 RANDOMIZE USR 64000
```

24 HOUR CLOCK

by D Howard



One of the problems of programming a computer is the complete unawareness of the passing of time. In desperation I wrote this program that continually displays a 24 hour clock at the top of the screen.

The program itself can be divided into two parts, the initialisation routine and the read/display routine. The initialisation routine is written in both Basic and machine code. Once run the Basic program reads the data statements and pokes them into memory. This having been completed the program asks you to set the clock. This is held in temporary memory until you tell it to start the clock. Control is then handed to the machine code routine which sets the TOD clock in the CIA device and alters the IRQ vectors at $0314 and $0315 to point to the second read/display routine. Having completed this the initialisation routine then erases itself from the memory.

Every 1/60th seconds the processor stops what it is doing to complete its various interrupt routines. However by altering the IRQ vectors we have told the computer to run our routine first. To help with display conversion the information in the TOD clock is stored in binary coded decimal (BCD) format.

For those who have not met it before BCD is a hybrid of binary and decimal. In BCD each byte is divided into two nybbles. As the first nybble counts up and reaches nine, one is added to the second nybble and the first nybble clocks over to zero. In this way we are able to count up to 99 in each byte. Thus the number 56 would be displayed as follows

Binary	BCD
00111000	0101 0110
56	5 6

Although this may at first seem wasteful of memory (in normal decimal each byte can contain up to 255) in programs that require numerical displays, it allows very rapid decoding and in fast programs a very high standard of accuracy can be obtained. The 6510 processor on the Commodore 64 can also perform arithmetic functions in BCD mode. From assembly language call SED to set BCD mode, with CLD to clear BCD mode.

Whilst this routine is running all functions of the computer remain operational; however Line One of the screen is inaccessible and if the cursor moves into this space, press cursor down to retrieve it. The $C block of memory is never used by Basic and so any Basic program and many machine code programs can be loaded, entered and run. The program is unaffected by a *NEW* command but a system reset will require the program to be reloaded again. Unlike routines which make use of the Jiffy clock ($00A0-$00A2) this program is unaffected by input and output routines.

For anybody who does not wish to type in this program I will supply them with copies if they write to me at 3 Elmhurst Road, Forest Town, Mansfield, Notts NG19 0EU, enclosing £1.50 for cassette or £2.50 for disc + 50p towards post and packing.

```
1 REM*********************************
2 REM     INTERRUPT DRIVEN CLOCK      *
4 REM     ----------------------      *
5 REM                                 *
5 REM     COPYRIGHT D J HOWARD 1985   *
6 REM                                 *
  REM*********************************
10 DATA 72 138 72 152, 72 173 11 220 72, 41, 128 208,- 1355
20 DATA 8 169 129 141 36 4 76 30 152 169 144 141  1230
40 DATA 30 4 100 41 127 72 164 174 141 37, 4 141  1059
45 DATA 38 4 163 141 141 38 4, 184 72 42 126, 192 - 1067
50 DATA 141 27 4 104 32 130, 192 141 38 4 173, 10 - 994
60 DATA 220 72, 02, 126 192 141 38 4 104 32 138 192 - 1203
70 DATA 141 31 4 173, 9 220, 72, 32 126 192 141 33 - 1174
75 DATA 4 104, 32 130 192 141 34 4 173 8 220 169 - 1219
90 DATA 136 141 29, 4 141 32 4 169 160 141 35 4 - 1000
100 DATA 162 0 157 0 4, 232, 224 27 208 248, 104 192 - 1510
110 DATA 104 138 104 76, 44 234 41 240, 100 4 74, 130 - 1300
120 DATA 208 252 24 105 176, 96 41 15 24, 105 176, 96 - 1318
130 DATA 128 169 42 162 0 157 83 4 157 138 4 232 - 1230
140 DATA 224 3 208 245 169, 48 141 87 4 169 41 141 - 1472
150 DATA 83 4 169 3 141 90, 4, 169 4 141 91 4 - 907
160 DATA 141 100 4, 169 46 141 92 4 141 94 4 141  1077
170 DATA 101 4 141 107, 4 169, 10 141 93, 4 169, 0,  951
180 DATA 141, 95 4 169 15 141, 96 4 169, 23, 141 97 - 1095
190 DATA 4 169 1 141 30, 4, 100 10, 141, 00, 4 169,  1017
200 DATA 49 141 103 4 130 57 141 104, 4, 100, 56 141,- 1130
210 DATA 105 4 169, 53 141 106 4 169 21 141, 24 208,- 1145
220 DATA 169 0 141 25, 3 169 192 141 21 3 175 14  1046
230 DATA 220 9 128 141 14, 220 173 15 220, 41 127 173, 1481
240 DATA 251 0 141 11 220, 173, 252 0 141, 10 220 173,- 1532
250 DATA 253, 0 141, 9 220 180 0, 00 141, 8, 220 56 - 1545
260 DATA -99 -50,-990
897 GOTO1000
900 IFC<>13THEN980
910 IFP+X<>0THENPRINT"] DATA ERROR IN LINE ";CHR$(13);"PLEASE RECHECK DATA"
920 R=0 C=0 GOTO1010
960 IFX=-99THENREADX
970 IFX=-99THENREADX
975 IFX=-999THENGOTO1100
980 PRINT"ERROR IN PROGRAM. PLEASE RECHECK. 600
1000 P=49152 C=0 R=0 PRINT""
1010 PRINT""READING DATA FROM LINE " PEEK(63)+(256*PEEK(64))
1020 C=C+1 READX
1030 IFX<0THENGOTO900
1040 R=R+1 POKEP,X P=P+X
1050 GOTO1020
1100 PRINT""
```

```
1105 PRINT"INTERRUPT DRIVEN CLOCK        MEMORY USED $C000 TO $C0??
1110 PRINT"ALL DATA ENTERED CORRECTLY " FORN=0TO2000 NEXT
1120 POKE251 0 POKE252 0 POKE253 0
1130 PRINT"]              SET MODE "
1140 PRINT " HOURS     MINS      SECS      AM/PM "
1150 PRINT "  00         00        00        A.M "
1160 PRINT "--------------------------------------"
1170 H=0 H1=0 INPUT"ENTER HOURS  " H
1180 IFH>12ORH<0THENPRINT"]T" GOSUB1600 GOTO1170
1190 IFH<10THENGOTO1230
1200 H1=INT H/10)
1210 H=H-(H1*10)
1220 POKE1106 (H1+48) POKE1107 (H+48)
1230 H1=H1*16
1240 H=H+H1
1250 POKE251 H GOSUB1600
1270 M1=0 M=0 INPUT"ENTER MINUTES " M
1280 IFM>59ORM<0THENPRINT"T" GOSUB1600 GOTO1270
1290 IFM<10THENGOTO1300
1300 M1=INT M/10)
1310 M=M-(M1*10)
1320 POKE1195 (M1+48) POKE1196,(M+48)
1330 M1=M1*16
1340 M=M+M1
1350 POKE252 M GOSUB1600
1370 S=0 S1=0 INPUT"ENTER SECONDS," S
1380 IFS>59ORS<0THENPRINT"T" GOSUB1600 GOTO1370
1390 IFS<10THENGOTO1420
1400 S1=INT(S/10)
1410 S=S-(S1*10)
1420 POKE1204 (S1+48) POKE1205 (S+48)
1430 S1=S1*16
1440 S=S+S1
1450 POKE253,S GOSUB1600
1470 PRINT"ENTER A OR P  M "
1480 GETA$
1490 IFH<12ANDA$="P"THENPOKE1212 16 POKE251 PEEK(251)AND127 GOTO1510
1495 IFH<12ANDA$="A"THENPOKE1212,1 POKE251,PEEK(251)OR128 GOTO1520
1500 IFA$="P"THENPOKE1212 16 POKE251 PEEK(251)OR128 GOTO1520
1505 IFA$="A"THENPOKE1212 1 POKE251 PEEK(251)AND127 GOTO1520
1510 GOTO1480
1520 PRINT""PRESS F1 TO START CLOCK, F7 TO ALTER "
1530 GETA$
1540 IFA$=CHR$(133)THENPRINT"" SYS49152 GOTO1570
1550 IFA$=CHR$(136)THENPRINT"T" GOTO1120
1560 GOTO1530
1570 FORN=49152TO49400 POKEN,0 NEXT NEW
1600 FORN=1300TO1463 POKEN,32:NEXT
1610 RETURN
```

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[illegible]	[illegible]	[illegible]	Gun Fight	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Mercenary	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Rambo	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tau Ceti	[illegible]	[illegible]	Knight Rider	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Commando	[illegible]	[illegible]	Winter Games	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Transformers	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Enigma Force	[illegible]	[illegible]	Arc of Yesod	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Back to Skool	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Forbidden Planet	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Arcade Hall of Fame	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	The Last V8	[illegible]	[illegible]
Zoids	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Battle of the Planets	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	The Young Ones	[illegible]	[illegible]
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Yie Ar Kung Fu	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Rambo	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	Lord of the Rings	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Elite	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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The Young Ones	[illegible]	[illegible]	Summer Games 2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	Yie Ar Kung Fu	[illegible]	[illegible]	The Evil Crown	[illegible]	[illegible]
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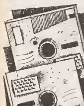
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RANDOM ACCESS

by Brian Cadge

The method Amstrad opted for to interface disc commands to Basic has the tremendous advantage of making nearly all software written for cassette directly compatible with disc drives However, it has the disadvantage of supporting only serial files, that is files can be opened, read in record one, followed by two, followed by three and so on. There is no facility for 'Random Access' files, (although these are supported in the CP/M environment) In a random access file any record can be read at random. For example, record 55 can be read directly, without Basic having to read in and skip over records 1 to 54 as with a serial file

The machine code program present ed here over the next two weeks gives the Basic programmer the facility to use simulated random access files I say simulated because the program itself uses Amsdos serial files as there is no file mapping available in Amsdos, but to the Basic user the files appear to be randomly accessible Another advantage of using this filing system is that as files do not have to be opened and closed there is no limit to how many files a Basic program can access 'at once' Amsdos normally supports only one input and one output file simultaneously

The user interface is via three new RSX commands, these are *DREAD*, *DWRITE* and *CREATE* Each will be described in detail, but you will find it easier to understand their use by using and studying the demonstration program included. To use the new commands you will first of all need to type in and run the Basic loader program, this will inform you if you have made any errors in the data statements, in which case you should recheck your listing

Before you can read or write to a file it must first be created, using the *CREATE* command. This is followed by a filename string and the maximum size of the file Note that once created you cannot enlarge a file, so always over estimate the number of bytes required The usual format of RSX's is required, that is a '|' (shift @) character preceding the command name, and a comma directly after it. This should be familiar to disc users as it is the same as is used by the *ERA*, *REN*, *DIR*, etc, commands A valid sequence to create a file called "PCW01 DAT", which can hold up to 2000 characters would be.

f$ = "PCW01 DAT"
|CREATE,@f$,2000

A random file must have a fixed record length, (the number of characters in each record) In the demo program this is 40 characters. When writing a string to a file you must pad out the length to the full record length with spaces, using for example the function FNp$ as in the demo program Details of *DWRITE* and *DREAD* next week

```
10 ' Basic loader program for simulated random disk files
20 MEMORY 37000
30 FOR i=37001 TO 37653
40 READ a$:v=VAL("&"+a$)
50 cs=cs+v:POKE i,v
60 NEXT i
70 IF cs<>96910 THEN PRINT"DATA ERROR - Check listing";CHR$(7):STOP
80 CALL 37001:CLS:PRINT"New commands loaded successfully"
90 PRINT"You can now NEW this loader program"
100 END
110 DATA 01,93,90,21,EA,A3,CD,D1,BC,C9,9E,90,C3,8D,90,C3,6B,91,C3,D5,92,44
120 DATA 52,45,41,C4,44,57,52,49,54,C5,43,52,45,41,54,C5,00,0E,00,CD,0F,B9
130 DATA CD,00,B5,1E,1F,C3,54,CA,CD,AE,93,FE,03,20,66,DD,66,03,DD,6E,02,22
140 DATA E3,93,7C,C8,7F,20,58,CD,C1,92,B7,28,52,32,E5,93,ED,53,E6,93,CD,CD
150 DATA 92,62,6B,47,11,EA,93,CD,77,BC,30,31,2A,E3,93,2B,7C,B5,22,E3,93,28
160 DATA 07,CD,80,BC,30,21,18,EE,DD,2A,E6,93,DD,E5,CD,80,BC,DD,E1,30,12,DD
170 DATA 77,00,DD,23,3A,E5,93,3D,32,E5,93,20,E9,CD,7A,BC,C9,21,4A,91,CD,5F
180 DATA 91,CD,7A,BC,C3,80,90,21,2F,91,18,F2,2A,49,6C,6C,65,67,61,6C,20,7B
190 DATA 61,72,61,6D,65,74,65,72,20,76,61,6C,75,65,0D,0A,00,2A,52,65,61,64
200 DATA 20,65,72,72,6F,72,20,28,45,4F,46,3F,29,0D,0A,00,7E,B7,C8,CD,5A,BB
210 DATA 23,18,F7,CD,AE,93,FE,03,C2,28,52,DD,66,03,DD,6E,02,22,E3,93,7C,CB
220 DATA 7F,C2,28,32,CD,C1,92,B7,CA,28,92,32,E5,93,ED,53,E6,93,CD,CD,92,32
230 DATA DE,93,62,6B,22,DF,93,47,11,EA,93,CD,77,BC,D2,55,92,21,80,92,06,08
240 DATA 11,EA,9B,CD,8C,BC,D2,55,92,AF,32,E1,93,CD,80,BC,30,42,32,E2,93,3A
250 DATA E1,93,B7,20,10,2A,E3,93,28,22,E3,93,7C,B5,20,B5,3E,FF,32,E1,93,3A
260 DATA E1,93,B7,20,0A,3A,E2,93,CD,95,BC,30,57,18,D2,2A,E6,93,7E,32,E2,93
270 DATA 23,22,E6,93,3A,E5,93,3D,32,E5,93,20,E2,32,E1,93,18,DD,28,3A,3A,E5
280 DATA 93,07,20,57,CD,7A,BC,CD,BF,BC,DD,21,AE,92,21,B8,92,CD,D4,BC,3E,01
290 DATA CD,18,B0,DD,21,AC,92,21,20,92,CD,D4,BC,3E,02,CD,18,00,C9,21,2F,91
300 DATA CD,5F,91,CD,7D,BC,CD,BF,BC,C3,00,90,21,5F,92,CD,5F,91,CD,7D,BC,CD
310 DATA 0F,BC,DD,21,AC,92,21,80,92,CD,D4,BC,3E,01,CD,1B,00,C3,80,90,21,6F
```

```
320 DATA 92,10,D1,21,07,92,10,DB,2A,57,72,69,74,65,20,65,72,72,6F,72,0D,0A
330 DATA 07,00,2A,46,61,69,6C,65,64,20,74,6F,20,6F,70,65,6E,20,66,69,6C,65
340 DATA 73,0A,0D,00,2A,49,6C,6C,65,67,61,6C,20,61,74,74,65,6D,70,74,20,74
350 DATA 6F,20,77,72,69,74,65,20,70,61,73,74,20,45,4F,46,0D,0A,00,8E,92,DE
360 DATA 93,54,49,4D,50,2E,52,41,4E,52,45,CE,45,52,C1,00,00,92,DD,66,01,DD
370 DATA 6E,00,7E,23,5E,23,56,C9,DD,66,25,DD,6E,04,18,F2,CD,AE,93,FE,02,C2
380 DATA 20,92,DD,66,01,DD,6E,00,22,E8,93,7C,FE,61,30,2A,DD,23,DD,23,CD,C1
390 DATA 92,47,62,69,11,EA,93,CD,8C,BC,30,21,2A,E8,93,7C,85,28,0D,28,22,E8
400 DATA 93,3E,2A,CD,95,BC,30,14,10,EC,CD,0F,BC,C9,21,28,93,CD,5F,91,C3,B0
410 DATA 90,21,4E,93,18,F5,21,64,93,10,F0,2A,4D,61,78,20,73,69,7A,65,20,6F
420 DATA 66,20,32,34,39,37,36,20,66,6F,72,20,72,61,6E,64,6F,6D,20,66,69,6C
430 DATA 65,73,0D,0A,00,2A,43,61,6E,6E,6F,74,20,63,72,65,61,74,65,20,66,69
440 DATA 6C,65,0D,0A,00,2A,57,72,69,74,65,20,65,72,72,6F,72,20,64,75,72,69
450 DATA 6E,67,20,63,72,65,61,74,69,6F,6E,2C,0D,0A,20,46,69,6C,65,20,6E,6F
460 DATA 74,20,70,72,6F,70,65,72,6C,79,20,63,72,65,61,74,65,64,20,2D,20,44
470 DATA 4F,20,4E,4F,54,20,55,53,45,21,0D,0A,00,32,E2,93,21,C5,93,CD,D4,BC
480 DATA 3A,E2,93,D8,E1,21,C9,93,CD,5F,91,C3,B0,90,44,49,53,C3,2A,43,61,6E
490 DATA 27,74,20,66,69,6E,64,20,41,4D,53,44,4F,53,0A,0D,00
```

```
10 '
20 ' Demo program for simulated random disk files
30 '
40 DEF FNP$(a$)=STRING$(40-LEN(a$),32): 'Pad string function
50 DEF FNr(rec)=(rec-1)*40+1: 'find Position of record in file function
60 ON ERROR GOTO 450
70 INK 0,0:INK 1,15:BORDER 0
80 MODE 1:PEN 0:PAPER 2:PRINT"    Random Disk Files Demonstration     ":PEN 1:PA
PER 0
90 LOCATE 1,5:PRINT"Creating file called DEMOFILE.DAT with  20 records of 40 cha
racters each"
100 filename$="DEMOFILE.DAT":size=20*40
110 |CREATE,@filename$,size
120 WINDOW #1,1,40,2,25:CLS #1
130 LOCATE 1,5 PRINT"Writing a few records into file"
140 record=1:a$="Popular Computing Weekly record 1":buf$=a$+FNP$(a$)
150 |DWRITE,@filename$,FNr(record),@buf$
160 record=20:a$="This is the last record of the file":buf$=a$+FNP$(a$)
170 |DWRITE,@filename$,FNr(record),@buf$
180 record=10:a$="Record #10 of the file":buf$=a$+FNP$(a$)
190 |DWRITE,@filename$,FNr(record),@buf$
200 CLS #1
210 LOCATE 1,5:PRINT"Press <R> to read a record,                   <W> to write
a record                   <Q> to finish demonstration"
220 i$=INKEY$:IF i$="" THEN 220
230 IF UPPER$(i$)="Q" THEN 420
240 IF UPPER$(i$)="R" THEN 270
250 IF UPPER$(i$)="W" THEN 340
260 PRINT CHR$(7);:GOTO 220
270 CLS #1:LOCATE 1,5:INPUT "read which record (1-20)";record
280 IF record<1 OR record>20 THEN 270
290 buf$=STRING$(40,32)
300 |DREAD,@filename$,FNr(record),@buf$
310 LOCATE 1,10:PRINT"Contents of this record are:"
320 PRINT:PRINT buf$
330 LOCATE 1,20:PRINT"Press any key for menu":WHILE INKEY$="":WEND:GOTO 200
340 CLS #1:LOCATE 1,5:INPUT "write which record (1-20)";record
350 IF record<1 OR record>20 THEN 340
360 PRINT:PRINT"Enter record contents:"
370 LINE INPUT a$
380 IF LEN(a$)>40 THEN PRINT"Record too large - truncated!":a$=LEFT$(a$,40)
390 buf$=a$+FNP$(a$) PRINT:PRINT"Writing record";record
400 |DWRITE,@filename$,FNr(record),@buf$
410 GOTO 330
420 CLS #1:LOCATE 1,5:PRINT"deleting DEMOFILE.DAT from disk..."
430 |ERA,@filename$
440 CLS:END
450 'error handler
460 PRINT:PRINT:PRINT
470 IF ERR=20 THEN PRINT"You must use the loader program before  this demo to lo
ad in the new commands!":END
480 ERROR ERR:END
```



CIPHER

by John Beckett

During the Second World War, a computer called Colossus was used to crack the German Enigma codes. Today, however, modern codes are deemed to be unbreakable. The program presented here allows you to encode and decode messages using a system devised by the famous statesman and philosopher Sir Francis Bacon.

Before we turn to the program itself, a brief explanation of how the code is constructed. Once you understand the code, there are hundreds of variations that can be used. Letters don't have to be used, just any two things that look slightly different.

First of all, we need our main coding chart which contains all the letters of the alphabet plus its key cipher, for our purposes, see lines 600-680.

For this example, we are using the letters A & B. The letter A is represented by AAAAA etc. The main rule for working this code is as follows.

A in the cipher represents any upper case letter.

B in the cipher represents any lower case letter.

The cipher is nothing but a simple double substitution. Let us say that we want to encode the word JOHN. First write out the word and underneath write its equivalent cipher as follows

J	O	H	N
BBBBA	ABBAB	AABBB	ABBAA

So, our final line will have the A's & B's substituted by upper and lower case letters. Remember the rule. An example of the message sent could be figuR ItoUt IFyou WilLL. This message is the secret code that is sent to your partner. It can say anything or be merely a jumble of words. It does not matter as long as the clear distinction is made against A & B, upper and lower case letters. In the program, the letters are generated randomly and then squashed together. So if you send the same message twice, it will appear different! Naturally it will be decoded the same.

Once you run the program, you have the option to encode or decode. Press the appropriate number for each choice. Encoding is easier than decoding as you don't have to enter five times as much. Upper case letters should be used and spaces aren't necessary. When decoding you may have to split the message into separate lines if it has not already been done. This will give you a maximum of 51 letters against 255. This is a slight limitation, but it means the code is very secure.

```
10REM - Francis Bacon Cipher -
20REM   John T W Beckett 1984
30DIM A$(26),E$(26)
40ON ERROR GOTO690
50PROCa
60MODE4:PROCb
70ON C GOTO80,90
80PROCe:GOTO100
90PROCd
100PRINT "Continue (Y/N)";
110A=(GET AND &DF)
120IF A=89 THEN 60
130END
140:
150DEF PROCe
160B$="":PROCi
170FOR A=1 TO LEN(T$)
180N$=MID$(T$,A,1)
190IF N$=" " THEN 230
200FOR B=1 TO 26
210IF A$(B)=N$ B$=B$+E$(B)
220NEXT
230NEXT
240FOR A=1 TO LEN(B$)
250N2$=MID$(B$,A,1)
260IF N2$="A" PRINT MID$(U$,RND(26),1);
270IF N2$="B" PRINT MID$(L$,RND(26),1);
280NEXT
290ENDPROC
300:
310DEF PROCi
320CLS
330INPUT "Enter message: ",T$
340IF T$="" VDU7:GOTO330
350PRINT "Message: ",T$ '
360PRINT "Result:"
370ENDPROC
380:
390DEF PROCd
400B$="":PROCi
410FOR A=1 TO LEN(T$)
420N$=MID$(T$,A,1)
430IF ASC(N$)>96 THEN B$=B$+"B" ELSE B$=B$+"A"
440NEXT
450FOR A=1 TO LEN(B$) STEP5
460N2$=MID$(B$,A,5)
470FOR B=1 TO 26
480IF E$(B)=N2$ PRINT A$(B);
490NEXT
500NEXT
510ENDPROC
520:
530DEF PROCa
540U$="":L$=""
550FOR A=65 TO 90:U$=U$+CHR$(A):NEXT
560FOR A=97 TO122:L$=L$+CHR$(A):NEXT
570RESTORE 610
580FOR A=1 TO 26:READ A$(A),E$(A) NEXT
590ENDPROC
600:
610DATA A,AAAAA,B,AAAAB,C,AAABA,D,AAABB
620DATA E,AABAA,F,AABAB,G,AABBA,H,AABBB
630DATA I,ABAAA,J,BBBBA,K,ABAAB,L,ABABA
640DATA M,ABABB,N,ABBAA,O,ABBAB,P,ABBBA
650DATA Q,ABBBB,R,BAAAA,S,BAAAB,T,BAABA
660DATA U,BBBBB,V,BAABB,W,BABAA,X,BABAB
670DATA Y,AABBA,Z,BABBB
680:
690IF ERR=17 THEN 100
700REPORT:PRINT" at line ";ERL
710OSCLI("KEY0 LIST"+STR$ERL+" |M")
720*FX138,0,128
730END
740:
750DEF PROCh(Z$,x,y)
760A%=&A:X%=0:Y%=&9:Z=&900
770FOR B=1 TO LEN(Z$)
780?Z=ASC(MID$(Z$,B,1)):CALL&FFF1
790VDU23,224,Z?1,Z?1,Z?2,Z?2,Z?3,Z?3,Z?4,Z?4
800VDU23,225,Z?5,Z?5,Z?6,Z?6,Z?7,Z?7,Z?8,Z?8
810PRINT TAB(x+B,y);CHR$224;TAB(x+B,y+1);CHR$225
820NEXT
830ENDPROC
840:
850DEF PROCb
860PROCh("Francis Bacon Cipher",9,0)
870PRINT TAB(9)"John T W Beckett 1984"
880PRINT"The following program will allow you to"
890PRINT"decode and encode messages using the"
900PRINT"cipher devised by Francis Bacon."
910PRINT STRING$(40,"-")
920VDU28,0,31,39,10
930PRINT TAB(15)"1 ..Encode "
940PRINT TAB(15)"2  .Decode."'"
950*FX15,1
960C=GET-48
970IF C<1 OR C>2 VDU7:GOTO950
980ENDPROC
```

Bytes and Pieces

Slow Down on Spectrum by Simon Walker

This is a short interrupt driven machine code program which will slow down Basic programs — in fact it slows down the whole computer.

Type in the listing, save the program (just in case it crashes on running) and then run it. Try using 5000 as a value for speed.

```
   5 IF PEEK 65234=201 THEN GO TO 60
  10 POKE 65082,1: POKE 65054,0: FOR f=65023 TO 65064: READ a: POKE f,a: NEXT f
  20 DATA 18,254,243,62,253,237,71,237,94,251,201,156,13,254,255,243,245,197,213,229,217,245,197,213,229,221,229,253,229
  30 DATA 1,1,0,11,120,177,32,-5
  40 DATA 62,126,62,62,62,120,62,253,225,221,225,225,209,241,201,201,237,86,201
  50 INPUT "speed.1-65535.1=fast ...",a
  60 POKE 65084,INT (a/256)
  70 POKE 65083,a-(PEEK 65054*256)
  80 RANDOMIZE USR 65028
  85 REM ......................
  90 REM  TO   TURN    OFF
       SLOW-FUNCTION TYPE
 100>REM   RANDOMIZE USR 65058
 110 REM ......................
```

Password on Commodore by C Cattanach

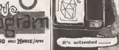
This is a short program for the Commodore 64, which you may choose to incorporate into your own programs. So many of the published routines where the CPU scans the keyboard under the auspices of the GET statement, result in "action" the moment one solitary key is depressed. With the routine shown, the password given by Z$ in Line 10, in this case "CHERRY", must be entered in full, before the program can continue. If a wrong key is pressed, one is given a further chance to enter the correct password, and then the program stops if this is not executed correctly in one go.

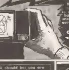
It can be seen that this could form part of a simple security system. If desired, the STOP command in Line 135 could be replaced with the command to disable the keyboard, and to sound an alarm.

```
1 REM"PASSWORD ROUTINE"
2 PRINT"PASSWORD ROUTINE - C.J.CATTANACH"
10 PRINTCHR$(147) Z$="CHERRY" ZL=LEN(Z$)
100 PRINT"%%GIVE PASSWORD"
105 FORB=0TOZL-1
112 GETA$ IFA$=""THEN112
114 IFA$=MID$(Z$ B+1,1)THEN120
117 PRINTCHR$(147) IFF=1THEN130
118 PRINTCHR$(147)"%%ERROR !! YOU HAVE ONE MORE CHANCE
    TO ENTER CORRECT CODE"
119 F=1 GOTO100
120 PRINTA$; NEXT
125 GOTO150
130 PRINTCHR$(147)"NOT CORRECT PASSWORD"
132 PRINT"%%AN UNAUTHORISED ATTEMPT AT ENTRY HAS BEEN
    MADE"
135 STOP
150 PRINT"":PRINT"%%PASSWORD IS CORRECT

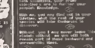
READY.
```

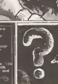
The Rogue Program

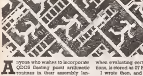











FLOATING POINT

by T P Merwyn

Anyone who wishes to incorporate QDOS floating point arithmetic routines in their assembly language programs will know that a special six byte internal format is used to hold these values. Any routines that take floating point arguments will expect to find them already written in this form.

It is no easy matter to convert from the normal decimal format to this internal format. This is particularly true when dealing with decimal fractions. Although Sinclair have documented the format (see page 50 of the QL Technical Guide), no simple algorithm is given to convert values into the format. For example, the value '1' is stored as the six byte hexadecimal sequence 08 01 40 00 00 00 and the value of 1/(SQRT(2*PI)), required when evaluating certain statistical functions, is stored as 07 FF 66 21 14 CF.

I wrote then, and provide here, an additional SuperBasic function written as a resident function extension to SuperBasic, which returns the internal format used to store floating point values. The function, *FP$()*, takes any floating point argument and returns as a six byte hexadecimal string the internal format of that argument.

FP$ has been implemented in the normal way – ie, by providing an assembly language routine to link it into the list of resident functions.

Listing one is the assembler source code for the function, with comments that should allow the techniques used to be understood. Once assembled into an object code module – eg, FP-OBJ – it can be linked into SuperBasic using the loader:

10 base = RESPR (160) **20** LBYTES MDV1 FP-OBJ, base **30** CALL base **40** NEW

Alternatively, those without assemblers can enter the program via the SuperBasic Loader given in Listing Two. This employs a weighted checksum technique that should pick up any Data line containing errors.

Once the function has been loaded, *FP$()* can be used in simple SuperBasic programs to provide conversions when required. For example:

10 REPeat main **20** INPUT 'Value to be converted', value **30** PRINT 'The internal format of ';value,' FP$ (value) **40** END REpeat main.

Listing One

```
*Floating point conversion function
*(c) T P Merwyn 1985
*Version 1

*
*Vectored Utilities
*
CA_GTFP  EQU   $114
BP_INIT  EQU   $110
CN_ITOHL EQU   $FE
CN_ITOHW EQU   $FC
BV_RIP   EQU   $58

*
*Error codes
*

ERR_BP   EQU   -15

START
    LEA      PROC_TAB,A1         Procedure table address
    MOVE.W   BP_INIT,A2          Linking utility address
    JSR      (A2)                Perform linking
    MOVEQ    #0,D0               No errors
    RTS                          Return

PROC_TAB
    DC.W     0                   No procedures
    DC.W     0                   End of procedures marker
    DC.W     1                   1 function
    DC.W     FPT-*               Address of FPT routine
    DC.B     3,'FP$'             Length and form of function
    DC.W     0                   End of functions marker

FPT
    MOVE.W   CA_GTFP,A2          Collect floating point
    JSR      (A2)                arguments
    BNE.S    FP_RET              Wrong argument type
    SUBQ.W   #1,D3
    BNE.S    ERRO_BP             Wrong number of arguments
    MOVE.L   A1,A0               First part of floating point value
    SUBA.W   #6,A0               Adjust arithmetic stack pointer
    MOVE.W   CN_ITOHW,A2         Convert word part
    JSR      (A2)
    MOVE.W   CN_ITOHL,A2         Convert long word part
    JSR      (A2)
    SUBA.W   #14,A1              Adjust arithmetic stack pointer
    MOVE.W   #12,0(A6,A1.L)      Reset arithmetic stack
    MOVE.L   A1,BV_RIP(A6)       And store it
    MOVEQ    #1,D4               Return function type
    MOVEQ    #0,D0               No errors
FP_RET
    RTS                          And return
ERRO_BP
    MOVEQ    #ERR_BP,D0          Set error type
    RTS                          And return
    END
```

Listing Two

```
100 REMark SuperBasic Program loader
110 REMark Floating point (internal format) conversion - FP$
120 RESTORE 1000
130 size=84
140 base=RESPR(size+130)
150 address=base:line_number=1000:endflag=0
160 REPeat loadcode
170    count=0:checksum=0
180    REPeat loadline
190       READ byte
200       POKE address,byte
210       checksum=checksum+byte*(count+1)
220       address=address+1
230       count=count+1
240       IF address=base+size:endflag=1:EXIT loadline
250       IF count=10:EXIT loadline
260    END REPeat loadline
270    checksum=checksum MOD 256
280    READ ccheck
290    IF ccheck<>checksum
293    PRINT "Checksum error at line ";line_number
295    STOP
297    END IF
300    line_number=line_number+10
310    IF endflag=1:EXIT loadcode
320 END REPeat loadcode
330 CALL base
340 PRINT'Code loaded'
350 STOP
1000 DATA 67,250,0,12,52,120,1,16,20,186,52
1010 DATA 112,0,78,117,0,0,0,0,0,1,50
1020 DATA 0,0,3,70,80,36,0,0,52,120,1
1030 DATA 1,20,78,145,102,80,83,67,102,58,186
1040 DATA 32,73,144,252,0,6,52,120,0,252,122
1050 DATA 78,146,52,120,0,254,78,186,145,252,142
1060 DATA 0,14,61,188,0,12,152,0,65,73,162
1070 DATA 0,88,120,1,112,0,78,117,112,241,112
1080 DATA 78,117,0,0,56
```



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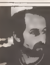
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Fantasy world

Although there have been many huge part works since, all (coincidentally, naturally!) set in a prehistoric/future world of mystery and fantasy, no other book has for me come close to *Lord of the Rings* in evoking a real fantasy world (this is not a contradiction). Imagine then how I approach *Lord of the Rings, Part One*, the new adventure from Melbourne House.

This review is impossible, because, like me, every adventurer will have his or her own expectations of what the program should achieve. It's too early for me to make a final judgement on the adventure as a whole, but I can discuss the bare facts of the package and draw some rather hesitant conclusions.

The packaging is comfortably impressive, as it should be, being contained within the largest video case I have seen. Two cassettes are needed for the two parts of the main adventure along with a detailed instruction booklet and a copy of the first part of Tolkien's trilogy, *The Fellowship of the Ring*. On the reverse of each cassette is an introductory adventure, being a stripped-down version of the main program as a gentle introduction to adventuring in general and LOR in particular.

play? The screen layout is quite pretty and colourful with what looks like the pages of a book, the current location being displayed on the topmost page. Like *The Hobbit*, graphics adorn many though not all of the locations, unlike MH's earlier adventure, the pictures are blocky, but quickly-drawn. They're pretty, and pretty useless too – and you can't turn them off. The location text, brief on the second visit to a location, is written in a well-designed character set and is always several lines long, thus creating a nice atmosphere throughout most of the adventure. At the bottom of the screen are three lines reserved for your (normal character set) input, which can be edited before entering. The documentation makes much of the fact that the player can change characters and thus view proceedings through different eyes and move the party of four around to different locations as required.

Current ego

Typing *Become* or *I Am* or simply the name of another character accomplishes this. It's not a unique facility – Infocom, as usual, cornered the market for this a couple of years ago with *Suspended* among others, and Phipps' *Knight's Quest* also featured a simple character-switching which was necessary to progress in the adventure. At the top of the screen then, is a little picture of your current ego, with the name of that character down the left side of the screen are pictures of all the characters in the party, with your current character highlighted.

All this sounds rather complicated, and it is: it's easy for the players to assimilate after a few minutes with the program, but of course all this shifting about of characters takes up a lot of processing time. Thus the response time is poor, with reported times of between four and 12 seconds (though it feels as if you could watch rocks growing while the program works everything out).

Helpful advice

The level of conversation is, I'm afraid, back to the 'Thorin starts singing about gold' level, although it seems at first that other characters are responding intelligently to your remarks: you can input any old rubbish and wait around until the right response is forthcoming, which is usually some helpful advice.

The *Help* command is only available, says the documentation, in the beginner's game, though I couldn't ever get any sense out of it (*'Don't be Silly'* was the standard response), and although both programs carried out *Save*, I couldn't get the beginner's version to *Load* anything back.

As I write this, I've just heard from the first reader to finish the adventure in just a couple of days. Mike Bateman of Wolverhampton is justifiably proud of his achievement (I hope he heard the butterflies during the race), and he had some interesting comments to make: 'Part One ends more by luck than judgement – I think, and Part Two, once the Riders are killed is just a matter of solving a huge, interlinked maze. This part ends with Galadriel giving the survivors presents as they sail down the rive rejoicing. The atmosphere is spoilt by an Orc Heavy Metal Band and cannabis plants (I didn't dare dally with the Elven Maidens and am still wondering what suggestion causes Galadriel to *Decline Demurely!*)" Mike reckons that Part One is excellent and, interestingly, doesn't mind too much about the long response time.

Bug-spotting a Philip Mitchell game has always been a favourite pastime for adventurers, and the first of the Ringbugs is an absolute dilly; typing *Leave* (the program doesn't, for all its 800 words recognise *Exit*) in the Baggin ner's game (the main game doesn't even respond to it) elicits the fabulous: *'I don't see any Leech to I am my name is'*. Great, isn't it, almost as good as the classic Evaporating Black River, or the Great En Do. This happens with many words that the program almost recognises, but funnily enough, input of complete garbage is correctly trapped. Another word not recognised, despite a mention in the manual, is *Score*.

There are two tests of the worth of any adventure quite apart from any trappings of packaging, hype and so on, does the game contain good puzzles and second, does the adventure create the sort of atmosphere in which the player's disbelief is suspended – that is, does the player feel that he or she actually exists within the game itself? Although the instruction booklet with LOR tries hard to transport the player to The Shire (*'Best of luck my furry-footed friend'* is typical), frankly, the shortcomings of programming and hardware keep getting in the way. This is, we are made only too aware, a computer game, and not a recreation of a beautiful and fantastic myth.

As yet, the only puzzle I have encountered – apart from how to avoid or deal with the Black Riders (it's not done like the book), or how to get your companions out of the abyss (a hint always try to get other people to follow you, their unique strengths will be of help) or how to get past the Hobbit Guard to the Mathom-house, where I hope to find the Dwarf armour – is what to do while waiting for the computer to wake up again.

Flawed program

Melbourne House have called *Lord of the Rings* 'the best adventure game to be released'. It should have been, and indeed could have been, but, although Mike believes that 'while it is not a great program, and is somewhat flawed, I wasn't actually disappointed with it', frankly, I was. Instead of Chateaubriand, I feel, despite the fact that LOR is better than most adventures, we have been served just a sirloin steak. What do you think?

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Games Writer

As promised in our Christmas roundup issue this week the column is going to have a close look at *Laser Basic*, a brilliant new games writing aid from Oasis Software sold on the Ocean IQ label.

You will remember that Oasis was responsible for the *White Lightning* games designer. Being *Forth* based it was a daunting package for novice programmers to use but its power can't be denied. Oasis impose no copyright restrictions on the sale of programs produced using their utilities but they do ask for a mention somewhere on the packaging which sadly they don't always get.

However, I know of several commercial releases on software labels as diverse as Mastertronic and Alligata that have been produced using *White Lightning*.

Laser Basic has been designed with many of the same graphics and sprite handling features of the earlier Lightning releases, but presented in a much more accessible way for the majority of home computer users.

There are in fact four separate types of commands available, graphics, sound, toolkit (such as *Renum*, *Auto* line numbering) and structured programming.

It also supports multi-tasking events driven by interrupts, it's an awesome experience to set some sprites bouncing around the screen to music and then being able to get on with expanding or debugging the listing without seeming to slow them down at all.

The manual is thankfully comprehensive and easy to follow. However, you shouldn't underestimate the program – you are given almost total control over your computer and there are over 200 new commands to learn. A working knowledge of Basic is essential.

Almost all Oasis releases have appeared for the Spectrum and Commodore machines but this is the first to appear on the Amstrad CPC range as well.

All three versions are excellent but Commodore owners have possibly got the best all round deal with 256 new commands and a turbo tape facility as well.

This is partly because the hardware is the strongest for games writing but also because the original Basic is so badly in need of improvement.

Owners of the earlier release *Basic Lightning* for the CBM will find that they have sufficient in common that it is probably not worth their while buying the new program.

There are 30 odd differences but many of your games programs will run on both without alteration.

The Spectrum version comes with no sound commands, for obvious reasons although I would have thought that something could be done in the area of interrupt driven effects.

Laser Compiler – Laser Basic companion program

Graphic magic

Partly for technical reasons and partly out of respect for Locomotive Basic, the Amstrad version is weakest on structured programming commands lacking *Procedures*, line labels, *Caseof-Casend* and other nice features of the other versions.

However, it is on the Amstrad that the greatest graphic magic has been worked. Although this is a machine that is commonly berated for having slow screen handling, and although it has twice as much screen Ram to shunt around than the Spectrum or CBM 64, Oasis have told me that they coded and recoded the graphics routines to make them as efficient as possible.

Shot in the arm

The results as shown in the demo are absolutely knock-out – much faster, smoother and clearer than the majority of half-hearted commercial games conversions for the CPC, including a marvelous little vignette taking the mickey out of *Hunchback* games.

Oasis have also realised an important point that many games writers miss – you can often produce a better game in four colour high-res than in chunky multi-colour mode.

The word from both Oasis and Ocean is that they intend to invest more and more effort into the CPC machines in the future so we can expect a significant boost in the quality of available software.

All three versions of the program come with several predefined sets of sprites, a sprite designer, a demo program and the *Laser Basic* interpreter itself. The Amstrad version has a sound design program but on the CBM 64 you are also given full control of the Sid chip.

The Spectrum version has an example game that is much less exciting than the demo but it has been partly included for you to try on the compiler.

Laser Basic is more than just a games designer, it's a major shot in the arm for your computer, driving it to new heights of performance. It is in a completely different league to any sprites or games designer package you may have seen before and I know that Ocean are getting enthusiastic responses from everyone that sees it, including jaded distributors who are normally wary of utility programs.

Of course you must have *Laser Basic* in memory before you can run your games but Oasis are working on a mini-Basic that omits the commands used for the design of sprites, etc, to save memory and reduce loading times.

More important is the next release on the IQ label which is a compiler for each of the versions of the Basic. Because the *Laser Basic* routines are themselves semi-compiled and extremely fast there may actually be little increase in speed of the graphics, although your game's logic will be enormously improved, but you will also finish up with machine code games than run completely independently of the utilities.

You can also compile programs that use no *Laser Basic* commands.

Superb utilities

Many other superb utilities are promised from the same label, including sound and graphics packages that produce data compatible with the *Laser Basic*. There is also a second games designer planned that will produce 3D vector graphics rather than sprite games but this is many months off yet. They also promise an awesome assembler/monitor that includes some features of a compiler and emulator, together with some of the source code used for the Laser graphics routines.

The final piece of good news is that Ocean have promised a competition to see who can produce the best screen/short game using *Laser Basic*.

We'll have more details when the program has been around long enough for people to find out how it works, but I advise you to start thinking about it as soon as possible – it's going to be good.

Tony Kendle



Redefined characters

William Hart, of Chipping Campden, Glos, writes

Q I am writing an arcade/adventure game for the 48k Spectrum which requires more than 21 UDGs. I have used the program below to redefine the whole character set, but the characters appear as normal afterwards. Why is this?

```
5 CLEAR 64000
10 FOR a = 64000 TO
   64000 + 8*95
20 READ b
30 POKE a,b
30 NEXT a
30 DATA ......
```

A You have done all of the hard work, what you have not done is to tell the Spectrum where to pick up your new character set from.

There is a system variable *(Chars)* which holds an address 256 less than the actual address of the character set

You need to point this to your new set This can be done (in your case) by: *Poke 23606,0* and *Poke 23607,249*

UDG problems

K Billington, of Leeds, writes

Q I am having trouble loading UDGs into The *Quill* database. I've tried following the instructions sent to me by Gilsoft but, as a novice, I don't quite understand them. I've created the UDGs with ISP's character generator, is this file not compatible with The *Quill*? Also it says in The *Quill* manual that the UDG file only holds 168 bytes. Does this mean that it will only accept 168 bytes?

A You should be okay. The file of UDGs created by the character generator should be loaded into *The Quill* using the *Load data Database* option on the menu *The Quill* should be able to handle any standard file 0 of UDGs (which are all 168 bytes long, 21 characters of 8 bytes each)

If you continue to have problems than I suspect that the ISP file is in a non-standard format, which would be very surprising

You could try loading the UDG file from a Basic program of your own and see if that works One last thought do you get the option of specifying the start address of the UDGs with the ISP program? You will need to match that with the address required by *The Quill.*

Load refusal

Mrs & A Norton, of BFPO 29, writes

Q We have a Commodore 64 and as a family have enjoyed playing games and learning how to enter programs into the computer. Alas one thing we have not been able to find out is why two of our games, both by Mastertronic, refuse to load most of the time. I've even taken them back to the shop only to be very embarrassed that they load in the shop. The trouble is that they go so far and then stop with a *Break Error*. I have tried to find out what the cause is but with no result.

A As the tapes load in the shop I would guess that the problem is connected with the head alignment on the cassette recorder This is actually a very common problem with Commodore cassette tapes and is of course extremely annoying The only advice I can give you is to buy one of the many head alignment kits on the market – from Robcom, Interceptor, Challenge and so on – and use it to make sure that your deck is as well-aligned as the one in your shop

Amstrad saver

Patrick Cunningham of Kilkeel, County Down, writes.

Q I have an Amstrad CPC464, but only sometimes will it *Save* programs on to tape. I do not want to send it back because my mother says that it would cost around £30 in transport costs. Please can you tell me how to fix it myself if that is possible.

A Don't panic, Patrick, I don't think that you will have to send the whole machine away The problem would appear to be with the cassette recorder If you bought the machine from a retailer and it is under guarantee then simply take it back to them for fixing and they will pay the transportation costs

If it is out of guarantee then any reasonable hi-fi repair shop should be able to fix it for you It is probably only a matter of aligning the recording heads correctly

Spectrum languages

Martin Hendrick, of Telford, Shropshire, writes

Q It is essential that I learn Cobol and Fortran as I wish to become a data processor/programmer. I own a 48k Spectrum and Microdrive. So: 1) are these languages available for the Spectrum? 2) If not are they available for any other micro? 3) are there any books on these subjects?

A Cobol and Fortran are not available on the Spectrum They are, however, available on any micro that is capable of running CP/M. As you probably know there are a large number of these, the Amstrad CPC6128 and Commodore 128, for example, although they are somewhat more expensive than the Spectrum

There are literally thousands of books on the subjects of Cobol and Fortran programming Try a visit to your local public library, which should have a reasonable selection.

One question for you Cobol I can understand, but why Fortran? Fortran tends to be used in the scientific side of computing and not the commercial side I would have thought that possibly Pascal would be the more useful language And Pascal is in fact available for the Spectrum, the Hi-Soft Pascal compiler being about the best

Software compatible

Keith Jones, of Crawley, Sussex, writes.

Q I recently purchased an Acorn Electron for the family and have a friend with a BBC. Although they are both 32K and use BBC Basic, the software tapes have a block. If we try to load them into each other's micros we have no success. Is there a way around this block or do the two machines need separate software?

A Yes, the two machines do need separate software The Electron is not properly software compatible with the BBC B, at least not as far as packaged software is concerned.

Almost correct

C Harris, of Mablethorpe, Lincs, Writes

Q A friend of mine has told me that Dragon Basic and IBM PC Basic are the same. Is this true? Does this mean that I would be able to run my programs on an IBM PC?

A No. However, Dragon Basic is itself based on the Microsoft standard, as is the IBM PC This means that your friend is almost right

You will get problems with programs that directly call Rom based routines or utilise system variables Graphics will also present difficulties Also, the reverse is true other micros which use Microsoft Basic can be adapted for the Dragon

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Ground Zero on Spectrum. Where is the cemetery and the shelter? Other help appreciated. Christopher Hallam 43 Duke Street, Cotmanhay Ilkeston Derbyshire

Valhalla on Spectrum. Cannot find third quest object - Skalmir Harold Silander 13 Craiglockhart Grove, Edinburgh. Can help on Tir Na Nog Dun Darach and Hobbit

Mindshadow on C64 Can I get off the island. O Silees 363 Barnstable Avenue Barking Essex.

Snowball on BBC/Spectrum. What is the code for the crew members cal fin? What floor is it on, and what next? J Haslam, 9 Sittingbourne Avenue Bush Hill Park, Enfield Middx

Twin Kingdom Valley on Spectrum. At the end, what do I have to take where to end the adventure? John W Bundle, 28 Western Road Aldershot, Hants

Bored of the Rings on Spectrum. Where are the magic scissors on part three? S Hill, 14 Alexandra Road, Margate Kent.

Emerald Isle on Amstrad. How do you get past pile of plectrums? What do you do at the statue and the monument? P Walker, 41 East Leys Court, Moulton, Northants

Sea Sunk on Amstrad Where do I find the acid? How do I get the pill out of the bottle? P Walker 41 East Leys Court Moulton, Northants

Sherlock on Spectrum. How do I get to Old Mill Road? Colin Barker 58 Oaktree Grove, Gipton Leeds 9

Heroes of Karn on Amstrad What do I do with the underbox? How do I get out of the dungeon and what's the frog for? Roger Wilson 7 Cawthorpe off Dukes Brow Blackburn, Lancs

Final Mission on Spectrum. Where is the key to the second iron door? A D Amalm 17 Muirhouse Road, Motherwell Lanarkshire Scotland

Questprobe II Spiderman on Spectrum. I want to know how to stop Electro and Mysterio. Can help on Hulk Adrian Carter, 98 Little Norton Lane Sheffield 8

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Eureka (Roman section) on C64 How do I cure the leprosy? Marcus Liversedge 387 Radcliffe Road Darcy Lever, Bolton Gtr Manchester

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8-bit figures compiled by Gallup/Microscope

Top Twenty

1	(2)	Rambo *(Spectrum/C64)*	Ocean
2	(1)	Commando *(Spectrum/C64)*	Elite
3	(4)	Winter Games *(Spectrum/C64/Amstrad)*	US Gold
4	(3)	Yie Ar Kung Fu *(Various)*	Imagine
5	(5)	They Sold A Million *(Spectrum/C64/Amstrad)*	Hit Squad
6	(6)	Way Of The Exploding Fist *(Amstrad/Various)*	Melbourne House
7	(10)	Formula One Simulator *(Spectrum/C64/Amstrad)*	Mastertronic
8	(7)	Elite *(Spectrum/C64/BBC)*	Acornsoft/Firebird
9	(8)	Computer Hits 10 *(Various)*	Beau Jolly
10	(20)	Spellbound *(Spectrum/Amstrad)*	Mastertronic
11	(–)	Action Biker *(Spectrum/C64/Atari)*	Mastertronic
12	(9)	Transformers *(Spectrum/C64/Amstrad)*	Ocean
13	(13)	Saboteur *(Spectrum)*	Durell
14	(–)	BMX Racers *(Spectrum/C64/C16)*	Mastertronic
15	(–)	Finders Keepers *(Spectrum/C64/Amstrad/MSX)*	Mastertronic
16	(–)	Now Games 2 *(Spectrum/C64)*	Virgin
17	(–)	Zorro *(Spectrum/C64/Amstrad/Atari)*	US Gold
18	(11)	Gyroscope *(Various)*	Melbourne House
19	(–)	Arcade Hall of Fame *(Spectrum/C64)*	US Gold
20	(12)	Mercenary *(C64/Atari)*	Novagen

Figures compiled by Gallup/Microscope

Readers' Chart

No Readers Chart this week, we're still catching up from the break over Christmas. However, send your entries in for Week 59 below. Everything will be back to normal next week.

Now voting on week 59 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's Readers' Chart, published above

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP

Voting for Week 59 closes at 2pm on Wednesday January 22 1986. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

Name ....
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My phrase is: ....

My top 3: Voting Week 59
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COUPON 2

New Releases

TEDIOUS

Kaiser is the latest Ariolasoft 'budget' disc game and proves to be a not particularly exciting version of *Kingdom*, a computer chestnut of venerable age

The idea is for you to manipulate the state's finances and the affairs of the people so that your province grows and eventually you attain power over the whole country Little surprise from the title that the whole thing is set in Germany

In true *Kingdom* style, the basis for the whole game is the amount of grain that your country produces each year, from this come decisions on buying land, building grain mills, developing the army, rates of various kinds of taxation, the state of the populace and (maybe) your eventual domination and installation as *Kaiser*

As a one player game, there is nothing to distinguish this from so many other similar games – the graphics are very simple, it has no real wit or style and is merely a relentless and quickly tedious plod through endless figures. As a two player game things improve with the addition of the chance of making war on other players and generally behaving badly

Unless you have an enthusiastic *Kingdom* loving friend I don't think you'll find *Kaiser* anything to invade Poland for

Program *Kaiser*
Price *£9 95*
Micro *Commodore 64*
Supplier *Ariolasoft*
Asphalte House
Suite 105/106
Palace Street
London
SW1E 5HS

IMPRESSIVE

The *Toolbox 3 Drumkit* is a most impressive program which produces drum type sounds on the Amstrad. It is absolutely useless for practical purposes unless you are trying to produce music from old tins and dustbin lids (haven't thought of that one have you, Karlheinz?) Nevertheless, it's lots of fun to play around with and arguably might actually teach you a few things about rhythm.

You set up the number of beats before a repeat and then use a screen editing system to insert any of 14 different percussion sounds You can construct up to ten sequences and splice these together for a complete 'song'. The system is fairly easy to use and aside from a range of preset sounds lets you construct three of your own sounds

Pick of the week

LINE OF SIGHT

More from Mastertronic Latest addition to the *MAD* series is *Master of Magic* This program starts off with one clear and significant advantage – it has music by Rob Hubbard When ever a game has music by Rob there is a tendancy to forget the actual game play and write reams and reams about how unbelievable it is that he manages to make the Sid Chip sound like 12 DX7's using a mere three channels

I shall try to avoid that, but the music on *Master of Magic* features some of the most incredible Hubbard effects yet

The game however, has merits of its own. It is, nominally, a form of Dungeons and Dragons in that you travel through caves collecting treasure and battling it out with a series of monsters using spells and blunt instruments The presentation of the game is quite original and to a certain extent disguises the D and D origins

The screen is divided into several windows – text information, an occasional visual representation of some objects or dead monster and command line and finally, in the top left hand corner, a simple scrolling map illustrating a small area of the caves However you can only 'see' on the map what you could actually see if you were exploring the caves – a neat piece of programming replicates the idea of 'line of sight', thus, unless you explore thoroughly into every nook and cranny of each cave, you may miss an important exit

All this for under £3, and then there's Rob Hubbard's fabulous music as well, I mean there's one section where you get what sounds like 12 instruments, all playing counterpoint over a chorus of ... *(That's enough eulogising Ed.)*

Program *Master of Magic*
Price *£2 50*
Micro *Commodore 64*
Supplier *Mastertronic*
Park Lorne
111 Park Road
London NW8

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Laser Basic	Ut	Amstrad	£14 95	Ocean
Locksmith	Ut	Amstrad	£17 95	Beebugsoft
Rembrandt	Ut	Amstrad	£13.95	Beebugsoft
Toolbox 3 Drumkit	Utc	Amstrad	£5 50	Camel
Toolkit	Ut	Amstrad	£14.95	Beebugsoft
Ultrabase	Ut	Amstrad	£14.95	Beebugsoft
Newton and Shuttle	Ed	BBC	£23 00	BBC Soft
Southern Belle	S	BBC	£7 95	Hewson
Bonding	Ed	BBC B	£17 20	BBC Soft
Ecology	Ed	BBC B	£23 00	BBC Soft
Electromagnetic Sp	Ed	BBC B	£17.20	BBC Soft
Electronics in Action	Ed	BBC B	£17 20	BBC Soft
Polymers	Ed	BBC B	£23 00	BBC Soft
Relationships	Ed	BBC B	£17.20	BBC Soft
Waves	Ed	BBC B	£17 20	BBC Soft
Flyer Fox	Arc	Bug Byte	£2 95	Bug Byte
Big Mac	Arc	C16	£1.99	Mastertronic
Master of Magic	Ad	Commodore 64	£2 50	Mastertronic
Elektraglide	Arc	Commodore 64	£8 95	English
Enigmaforce	Arc	Commodore 64	£9 95	Beyond
Kane	Arc	Commodore 64	£1 99	Mastertronic
Quake Minus One	Arc	Commodore 64	£9 95	Beyond
Superman	Arc	Commodore 64	£9 95	Beyond
Uridium	Arc	Commodore 64	£8 95	Hewson
Zzzz	Arc	Commodore 64	£1 99	Mastertronic
Harvey Smith Show	Arc	MSX	£9 95	Software Projec
QL Classic Adventure	Ad	QL	£9.95	Sinclair
QL Paint	Ut	QL	£24 95	Sinclair

New Releases

This user define section is very impressive, envelope shapes are displayed and altered according to your instructions – seeing this visual representation of your sound helps a great deal – and it is possible to create a host of different boinnggs, thwacks and differently pitched dustbin lids.

Cheap and fun, of no practical use, but who cares?

Program *Toolbox 3 Drumkit*
Price *£5 50*
Micro *Amstrad*
Supplier *Camel Micros*
Wellpark
Willeys Avenue
Exeter

FUTURISTIC

Zoids are another one of those futuristic battle toys that dominated the toy industry last year With Transformers – the other futuristic toy – already in computer game form it's not surprising that Zoids should also find their way onto the micro What is surprising is that it should be very good indeed and quite original

The game is an icon driven wargame, there are plenty of animated graphics for those that require them – battles, scrolling maps, missile attacks but the skill of the game is mainly strategic The task is to find and collect the pieces of the master blue and Zoidzilla – the pieces are located in six city zones belonging to the generally unpleasant red zoids

Collecting the pieces involves searching a landscape positively littered with nasty red zoids of every kind, doing frequent battle, ordering missile attacks from base and blasting assorted city domes, power plants and other strategic installations

A clever, well presented game, perhaps a shock to those expecting a more conventional arcade program but devious and challenging.

Program *Zoids*
Price *£7 95*
Micro *Spectrum*
Supplier *Martech*
Martech House
Bay Terrace
Pevensey Bay
East Sussex
BN24 6EE

NOTE VALUE

There are quite a few programs around which aim to teach music at some level or other via the computer Music is, at least in part, very well suited to a computer tutorial approach – there is much drill and repetition (what note is that? what key is this?) and graphics and sound mean that concepts can be illustrated with practical examples

The surprising thing is that most computer music programs aim for so little, beyond teaching the note values and the names of the notes. The exception to this is an excellent program, available on several micros, called *Music Teacher*

Not only is this a more extensive and ambitious tutorial than most of the other music programs it is also better presented A case in point: when describing how keys flow from one another in the 'circle of fifths', how the circle works is explained by actually drawing a circle using the note names extending up from the stave

Using the program thoroughly will not only teach note names and values, it will teach key signatures, and all kinds of scales, quick note recognition and some work on intervals The program claims it covers material up to grade five – I'd say that was stretching it a bit, but certainly it should have a fair degree of long term use

Program *Music Teacher*
Price *£12 cassette, £15 disc (£16 BBC)*
Micro *Amstrad, Spectrum, BBC*
Supplier *Childsplay Software*
2 Southview Drive
Uckfield
Sussex

STUNNING

Here come DK'Tronics again, in the latest release to derive from the company tie up with Thames Television, *Benny Hill's Madcap Chase* Now I have to say that this was not a concept that thrilled me

In fact, *Benny Hill's Madcap Chase* is a very clever program The graphics routines from *Popeye* have been refined to give large expressive graphics with no sign of attribute problems whatsoever Visually the game is stunning – watch out for when Benny gets stomped on by an outraged housewife as an example of excellent animation

The problem with the program is the gameplay There is essentially one plot repeated three times The paucity of plot means limited long-term entertainment which is a shame because there is some excellent programming.

Program *Benny's Hill's Madcap Chase*
Price *£6 95*
Micro *Spectrum*
Supplier *DK Tronics*
Englands Lane
Gorleston
Norfolk NR31 6BE

This Week

Desert Rats	S	Spectrum	£9 95	CCS
Laser Basic	Ut	Spectrum	£14 95	Ocean
Spectrum Jungle Kit	Ut	Spectrum	£2.99	Cheetah

Key: Ad adventure S–strategy-simulation
Arc–arcade Ut–Utility Ed–education

BBC Soft, 35 Marylebone High Street London W1M 4AA, 01 580 5577 **Bestbugsoft**, PO Box 50 St Albans, Herts AL1 1EX, 0727 40305 **Beyond**, Lector Court 153 Farringdon Road London EC1R 3AD, 01 837 2899 **Bug Byte**, Mulberry House, Canning Place Liverpool, L1 8JB 051 709 7071 **CCS**, 14 Langton Way, London SE3 7TL **Camel**, Wellpark, Willeys Ave Exeter EX2 8BE 0392 211892 **English**, Box 43 Manchester M60 3AD, 061 835 1358 **Hewson**, 7 Grahame Close Blewbury, Oxon OX11 9QE 0235 832939 **Mastertronic**, Park Lorne 111 Park Road, London NW8 7JL, 01 402 3316 **Ocen**, 6 Central Street manchester M2 5NS, 061 832 6633 **Sinclair**, Stanhope Road Camberley Surrey GU15 3PS, 0276 686100 **Software Projec**, Bearbrand Complex Allerton Road Woolton, Liverp9ool L25 7SF 051 428 9393

Thinking process

The recent launch – in the press, not into space! – of the British Aerospace Space Shuttle "Hotel" project, said it will be piloted by Artificial Intelligence.

Artificial Intelligence or AI is a growing field. In this article I shall attempt to explain some of the key ideas of Artificial Intelligence work and try to show its fascination.

Expert Systems are the translation into machine form of the thinking or actions of a human expert. The simplest form of these is the machine robot which can copy the actions of the human worker who programmes it by carrying out the required action.

More complicated systems exist which are capable of taking the place of a doctor or medical specialist and are able to diagnose illness as well as the human expert they are based on.

Expert systems are designed in two parts. The first is a database or memory for facts. The second is a set of *heuristics* or rules for handling that data and providing an outcome. This style of program can solve complex problems by reducing them to smaller problems.

Modelling Approaches attempt to echo in machine form human thinking processes. The ultimate aim may be to develop machine systems which can carry out humanlike activities, hearing, seeing, remembering, solving simple problems and learning.

This work has one key theme called *inference*, and the easiest way to explain this idea is to give a simple example.

What is the fourth item in this list? L M N O P Q. That is easy – it is the letter 'O'.

OK now what is the fourth item in this list? 3 2 1 0 1 2. Again easy – the number of zero.

Now what is the fourth item in this list? 2 N 1 O P 1 Q 2.

It depends what you are looking for – if you look for a zero you can find one, and if you look for a "O" you can also find one. The written symbol in both cases is exactly the same!

Humans are very good at this *inference* of meaning from surrounding context. Computers are not and this is the charm of AI.

This kind of *pattern matching* can be explained using an example drawn from Language Understanding Programs. The first program, to provide a model of conversation, the classic Eliza, takes the input from the user and tries to find a pattern in data to match to it. Then it provides a response to suit.

Eliza works in an empty pattern matching way. It seeks key words in the input and when it matches a group of words such as "I like X" it infers that the next word is of interest to the user and grabs hold of it to use to make him speak again.

This system has been combined with a simple memory. This holds a "script" or a list of the things that happen in a simple everyday event like visiting a café.

The script allows the computer program to use context to infer meaning from the situation. If the customer orders "tortelini" it will assume that this strange set of letters are a foodstuff and the usual set of rules for food apply. If the program is asked 'Did the customer eat the tortelini?' it will think through the script and notice that 'tortelini' was ordered. In a café people order food and then they eat it. So the program realises that this is a food which was eaten and answers "Yes".

There is a word that is the terror of AI workers: "it"! Just think for a moment about these sentences and note how the meaning of "it" changes:

a) I went down the road. It went on for miles
b) I went down the road. It was raining
c) I went down the road. It was a badly needed pint.

The meaning of "it" in each case is different. This *bridging* process is handled by *demons* in the program. These little beasts look out for their special words in the input and when an "it" comes up the first meaning tried is that of the nearest demon. In a. "it" is the road that goes on for miles. In b. the road demon would be tried but it would report "sorry roads don't rain! – rain is weather – try the weather demon!" In c. The demons would report back 'pint – that's drink! Try the drink demon – the drink demon would then report – 'have a pint' – must be a pub!'

The world of AI is very young and the way in which I have handled the ideas above would bring tears to the eyes of the researchers who took years to work them out. I must make it clear that this article can give no more than the flavour of AI.

John Feeley

Puzzle No 191

The current copy of the 'Dewbury Chronicle' contains a photograph taken in the lounge bar of the 'Dog & Puddle' showing a magnificent pile of pennies collected for charity by the regulars of this establishment. The target is for £1000 and the sum so far collected is within a hundred pounds of the target figure.

At the time that the photograph was taken there was an exact number of pounds present, and young Pythagoras Perkins, the landlord's son, worked out that there was also the precise number of pennies that could be arranged in a perfect triangular arrangement.

How much had been collected when the photograph was taken?

Solution to Puzzle No 186

There are four sets of figures which fit the alphametic: 38486 + 69781 = 108246; 38487 + 89841 – 128048; 58287 + 80641 = 138928; 63732 + 39841 – 103873; 69268 + 90431 = 159729; 85254 + 50671 – 135925

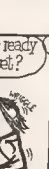
```
10 LET T=1
20 FOR A=0 TO 9
[illegible]
```

The program uses a series of *For/Next* loops to generate combinations of digits, the remaining digits being found by direct calculation (for example, if values are taken for N and T then the value of E can be found immediately from the units column of the alphametic). Also, by inspection we can save time as the value of T can only be 1, and also the value of I must be either 0 or 9.

Winner of Puzzle 186

The winner (who was the only entrant to generate all four) is M W Peters of Spetisbury, Dorset, who will receive £10

The Hackers





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BY D.K.MARSHALL

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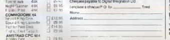
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